ATLAS

OF THE STATE OF

NEW HAMPSHIRE

INCLUDING STATISTICS AND DESCRIPTIONS

OF ITS

TOPOGRAPHY, GEOLOGY, RIVER SYSTEMS, CLIMATOLOGY, RAILROADS, EDUCATIONAL INSTITUTIONS, AGRICULTURAL AND BOTANICAL PRODUCTIONS, MECHANICAL AND MANUFACTURING INTERESTS, ETC.

THE TOPOGRAPHICAL WORK UNDER THE DIRECTION OF

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PREFACE.

ALTHOUGH we cannot assert that the maps of which our atlas is made up are absolutely correct, or that they approach this condition so nearly as future maps based upon a complete Geodetic Survey may be expected to do, we feel warranted in claiming that they embody a very large amount of valuable geographical and topographical information, all indeed which is at present available. At the same time they do not depart so far from strict accuracy as to impair their value for the ordinary uses to which maps are put.

An accurate Geodetical Survey of the State, like those carried on by the Governments of Europe, would far exceed in cost the means of private individuals and must necessarily be executed at the expense of the General or the State Government or of both combined. Indeed a combination of this kind has been provided for by Congressional Legislation, and the United States Coast Survey has for several years carried on the preliminary triangulation of a Geodetic Survey with the understanding that the State will complete the topographical part of the work. The execution of this triangulation in the field has been intrusted to Professor E. T. Quimby, of Dartmouth College.

Considerable progress had already been made in this work when the construction of the maps contained in this atlas was commenced, and by the kindness of Professor Quimby we were put in possession of its results so far as completed. We are happy to state in addition that his later results verify the positions we had already obtained from other data, for objects in the vicinity of the more recently determined trigonometrical stations, to within quite narrow limits of error.

The sources of geodetic information upon which the maps are based are as follows:

First; The United States Coast Survey, already mentioned, whose triangulations up to the time when the projection for this atlas was made included the following points,

Mt. Washington, Kearsarge (North), Passaconaway, Whiteface, Chocorua, Mt. Pleasant (Me), Mt. Independence (Me), Ossipee (Me), Gunstock, Moose, Dartmouth Observatory, Ascutney (Vt), Agamenticus (Me), Pawtuccaway, Kearsarge (South), Monadnock, and Hog Island (Isles of Shoals). Stations which were more lately occupied are shown upon the sketch map of the Triangulation given on page 43.

These stations make a network of positions, none of which is farther than about twenty miles from the one nearest to it. At least five sixths of the area of the State lie south of the latitude of Mt. Washington, the most northerly of these stations.

Second; The Trigonometrical Survey of Massachusetts, completed by Simeon Borden, in 1842. This survey determined with accuracy the entire southern boundary of the State of New Hampshire.

Third; The National Boundary Survey between the United States and Canada, made in 1848, under the Ashburton Treaty. This survey fixes the northern boundary of the State with the same reliable degree of accuracy attained in the other two surveys. Mt. Washington is but a little more than fifty miles distant from the nearest point in this survey, which is the northeast corner of the State of Vermont.

It will accordingly be found that every point in the State, is within twenty-five miles of some geodetical point fixed by one of the Surveys above mentioned, the stations generally being considerably less than this distance from each other.

For the details of topography we have had recourse to the county maps of the State, the copyrights of which were secured for that purpose. The following list gives the authorship, date and scale of each of these maps.

Coös,	by	H. F. Walling,	1861,	Scale	$1\frac{1}{4}$	miles to 1 inch.
Carroll,	"	"	"	"	1	mile to 1 inch.
Grafton,	"	"	1860,	"	$\frac{1}{70,000}$	
Merrimack,	"	"	1858,	"	$1\frac{1}{4}$	inches to 1 mile.
Sullivan,	"	"	1860,	"	$\frac{1}{48,000}$	
Belknap,	"	E. M. Woodford,	"	"	$1\frac{5}{8}$	inches to 1 mile.
Strafford,	"	J. Chace, Jr.,	1856,	"	$1\frac{1}{2}$	" "
Cheshire,	"	L. Fagan,	1858,	"	1	" "
Hillsborough,	"	J. Chace, Jr..	1858,	"	$1\frac{1}{2}$	" "
Rockingham,	"	"	1860,	"	$1\frac{1}{4}$	" "

There is also an *atlas* of the County of Strafford, by Sanford and Evarts, 1871, giving separate plans of the towns on scales of 120, 160 and 200 rods to an inch.

All these county maps were constructed from traverse surveys of the roads, in which the magnetic compass was used for bearings, and the wheel odometer for distances. In plotting these surveys, each closed circuit afforded a check upon the adjoining ones, so that important errors of survey, indicated by failures to close, were usually detected and corrected.

This is of course a comparatively rude method of representing large areas upon the earth's surface, but with the aid obtained from the more refined geodetic operations already mentioned the results obtained will serve for the uses to which maps are put by most of those who use them, and must suffice in the absence of the more complete and costly work which it is to be hoped the intelligence and liberality of some future State Legislature will inaugurate.

The Contour Lines in the atlas, printed in brown, indicate heights above the level of the sea. Each line is 100 feet higher than the next lower one, and every fifth line is dotted, for convenience in counting. Figures indicating heights are given at convenient places. The height of any locality in the State can be approximately found by these lines.

They were drawn by Mr. Upham, under the direction of Professor Hitchcock, State Geologist. It was found necessary in making geological cross sections, etc., to obtain the information thus given. The immense labor of drawing these contours from the scanty data available, can hardly be realized by one who has not attempted it. Of course they are to a certain extent conjectural, but they afford the best representations attainable at present of the vertical relations of the surface throughout the area of the State.

Professor Hitchcock's article on the Topography of the State contains a more complete account of the data used in constructing the maps, with a sketch of the Topographical Literature of the State. There is also an interesting sketch of the River Systems by Mr. Upham.

Through the kindness of the authors we are enabled to greatly increase the value of our work by the addition of the articles on Geology, Climate, Botanical Productions, Railways, Educational Institutions, etc.

The List of Cities, Villages and Post Offices with their means of access, population of towns, etc., will be found very convenient for reference. It has been carefully compiled and it is believed to be full and accurate.

CONTENTS.

MAPS

TOPOGRAPHY.

BY CHARLES HENRY HITCHCOCK,

STATE GEOLOGIST OF NEW HAMPSHIRE.

THE general shape of the territory of New Hampshire is that of a scalene, almost a right-angled triangle,—having the perpendicular one hundred and eighty, and the base seventy-five miles long. From the crown monument, at the extreme north point, to the south-east corner of Pelham, at the most southern extension, the distance is one hundred and eighty miles,—the length of the perpendicular. The longest distance that can be measured in the state is from the crown monument to the south-west corner, a distance of one hundred and ninety miles, and this line would be the hypothenuse of the triangle. The greatest width of the state is from Chesterfield to the outer island of the Isles of Shoals, a distance of one hundred miles. To the outermost projection of Rye from Chesterfield, the distance is seven miles less. At Colebrook, the width of the state is only twenty miles. It embraces 9,392 square miles.

New Hampshire is bounded north by the province of Quebec, east by the state of Maine, south-east by the Atlantic ocean and Essex county, Mass., west and north-west chiefly by the state of Vermont, and partially by Quebec. It lies between 70° 37′ and 72° 37′ longitude west from Greenwich, and between 42° 40′ and 45° 18′ 23″ north latitude.

Our territory posseses a mountainous character, much more so than the average among the states along the Atlantic slope of the continent. It is situated about a third of the way from the north-eastern end of the Atlantic system to the south-western extremity of the chain. Viewed as a whole, there are two culminating points in this system. The land rises gradually from the ocean level in the Gulf St. Lawrence till the apex of the White Mountains is reached. Then it falls to the Hudson river, reaching the ocean level along that valley. From this line it ascends to the mountains in western North Carolina, whence the land descends to the Gulf of Mexico.

More particularly, there is a mountainous ridge following the eastern rim of the Connecticut river basin entirely through the state. On the east the country is low, scarcely rising above five hundred feet for three-fourths of the area outside of the foot hills of the White Mountains. These mountains occupy nearly all the space east of the western ridge to the Maine line, for a distance north and south of about thirty-three miles. This district is mostly wooded, very mountainous, and scarcely inhabited. Deep transverse valleys divide the White Mountains proper from a similar triangular area between the Androscoggin and Connecticut rivers. There is a third mountainous district half way through Coos county, and the fourth and last along the extreme northern boundary. On the other side of the Connecticut there is a similar elevated country, constituting the sparsely settled district of Essex county, Vt.

The state may be divided into six topographical districts.

1. Hydrographic basin of the Connecticut river, leaving the main valley at Barnet, and continuing up the Passumpsic to its source.
2. Hilly district of the principal portions of Coos county, N. H., and Essex county, Vt.
3. White Mountain area.
4. Winnipiseogee Lake basin.
5. Merrimack River basin, wedging into the White Mountain area.
6. The Atlantic slope in Strafford and Rockingham counties.

I. The Connecticut Valley. The limits assigned to this district differ from the exact area drained by the waters of the hydrographic system of the Connecticut. Owing to the presence of a prominent mountain ridge six or seven miles back from the river, the proper valley lies in the western part of the east side of the basin. This boundary corresponds, also, with that of the distinctive agricultural and geological character of the district. In general, it follows on the east, the ridge of slaty or quartzose hills from Winchester to Benton, and thence the eastern line of the Connecticut basin to Carroll; thence it continues down the John's river valley to the Connecticut in Dalton, crosses over the Concord, Vt. ridge to the eastern line of the Passumpsic river basin, which it follows around to Newark, Sheffield and Cabot. From here the line coincides with the west border of the Connecticut basin to Washington, Vt.; thence it proceeds west of south directly to Proctorsville, Vt. Here it turns back sharply to the south-west corner of Hartford, whence it proceeds again nearly in a right line west of south to the Massachusetts line in Halifax, Vt. This area comprises about 3,200 square miles, and it is the best agricultural district east of the Green Mountains.

II. Coos and Essex District. This lies at the extreme north of the area of our explorations. It is all mountainous, sparsely settled, largely covered with forests, yet containing many tracts of great fertility. It is the most diversified of all the topographical districts. The main water-shed of New Hampshire passes through the middle portion from Randolph to Mt. Carmel; and, in Essex county, there is a similar ridge from Lunenburg to the state line. The Grand Trunk Railway passes through the lowest line of depression that can be found in this area. Commencing at the boundary of Quebec and Vermont, with 1,232 feet elevation above the sea, it rises to 1,357 feet at Norton, and thence descends to Connecticut river at North Stratford, which is 915 feet. Following the river down to Groveton, there may be a fall of twenty feet. The road proceeds up the Upper Ammonoosuc, attaining 1,080 feet at Milan water-station. Thence it descends to the Androscoggin valley, passing into Maine with an altitude of 713 feet.

There are two prominent lines of depression, running in a north-easterly direction, in the Coos region. The first follows the Androscoggin, from Shelburne to Umbagog lake, 713 to 1,256 feet; the second follows the Connecticut river, from 830 feet at Dalton to 1,619 feet at Connecticut lake, and thence to 2,146 feet at the gap above the source of the Connecticut. All the rest of this district is more elevated than these three lines of depression.

III. White Mountain area. The White Mountains of New Hampshire cover an area of 1,270 square miles, bounded by the state line on the east, the Androscoggin river and the Grand Trunk Railway on the north-east and north, the Connecticut river valley, or an irregular line from Northumberland to Warren, on the west, the less elevated region of Baker's river on the south-west, the Pemigewasset river and the lake district on the south. The Pemigewasset valley makes a prominent notch in it in Thornton and Woodstock. The Saco river cuts the White Mountains into nearly equal parts;—and it may be convenient sometimes to speak of what lies on the east and the west sides of this stream.

The mountains may be grouped in ten subdivisions. 1. Mt. Starr King group. 2. Mt. Carter group. 3. Mt. Washington range, with a Jackson branch. 4. Cherry Mountain district. 5. Mt. Willey range. 6. Mts. Carrigain and Osceola group. 7. Mt. Passaconnaway range. 8. Mts. Twin and Lafayette group. 9. Mts. Moosilauke and Profile division. 10. Mt. Pequawket area. Divisions 2 and 3 may be termed "Waumbek" for convenience, and divisions 5, 6, and 8 may receive the name of "Pemigewasset."

Considered as a whole, the main range would commence with Pine mountain in Gorham, follow the Mt. Washington ridge, cross the Saco below Mt. Webster, and continue south-westerly by Nancy mountain, Mt. Carrigain, Mt. Osceola, and terminate in Welch mountain in Waterville. Another considerable range may be said to commence with the Sugar Loaves in Carroll and Bethlehem, and continue westerly by the Twin mountains, Lafayette, Profile, Kinsman, and Moosilauke. A third of some consequence might embrace the Carter range, with Iron

mountain in Bartlett. These mountain groups differ much in geological character, age, and marked topographical features.

Mt. Washington Range. The main range of Mt. Washington extends from Gorham to Bartlett, about twenty-two miles. The culminating point is central, with a deep gulf towards Gorham, a slope on the north, formed partially by the westerly Mt. Deception range, which also produces the broad Ammonoosuc valley on the west, in connection with the axial line of summits. On the south there are two principal valleys, the more westerly occupying the depression of Dry or Mt. Washington river, and the easterly passing down the slope of Rocky branch, which travels easterly near its termination, so as to be parallel with the Saco in Bartlett. Starting with the Androscoggin valley, the range commences in the low Pine mountain. In the south-east corner of Gorham this is intersected by the pass of the Pinkham road between Randolph and the Glen house. Next, the land rises rapidly to the top of Mt. Madison, 5,400 feet. The range now curves westerly, passing over the summits of Adams, Jefferson, and Clay. The gap between Clay and Washington is the best place to behold the deep abyss in which the west branch of Peabody river takes its rise. From Washington, one can easily discern the east rim of the Great Gulf, for upon it is located the carriage-road to the Glen house. From the lake of the Clouds, and the eminence south of Tuckerman's ravine to Madison, it is easy to imagine the area an elevated plateau,—of which Bigelow's lawn is a portion,—out of which Washington may rise 800 feet. On the east of Washington, two deep ravines have been excavated,—Tuckerman's and Huntington's. The first runs easterly, and holds the head waters of Ellis river; the second runs parallel to the first and contains one of the tributaries of Peabody river.

Fig. 1 sketches the east side of Mt. Washington, from Thompson's falls, in the Carter range, south of the Glen house.

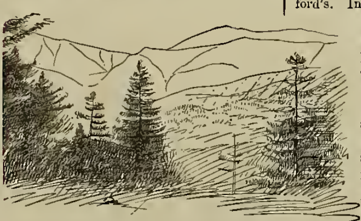


Fig. 1. RAVINES ON MT. WASHINGTON, FROM THOMPSON'S FALLS.

The deep valley on the left is Tuckerman's ravine. Huntington's ravine, the head of Peabody river, lies back of a low, woody ridge terminating just behind the prominent spruce tree in the centre of the foreground. The tops of the ridge back of Huntington's ravine, and the one to the extreme left, mark the edge of the 5,000 feet plateau about Mt. Washington. Mt. Washington itself rises above the plateau a little to the right of the centre of the sketch. The projection between the two ravines is known as Davis's Spur.

Past Mt. Washington the main range descends to the pass of the Lake of the Clouds,—the source of the Ammonoosuc river,—5,000 feet high. The first mountain is Monroe—a double, ragged peak scarcely ever visited, the road passing around it. Next follow in order Mts. Franklin, Pleasant, Clinton, Jackson, and Webster. The gaps between all these are small. Mt. Pleasant may be recognized by its dome shape. Fig. 2 will give a good idea of the ranges as seen from near the White Mountain house in Carroll. The last peak on the right is a fragment of Jackson. It lies a little back from the line; and the road to Crawford's lies in front of it.

Fig. 2. MT. WASHINGTON, FROM NEAR FABYAN'S.

The valley in front is the broad basin of the Ammonoosuc; and the lower slopes of the Deception range on the left. Mt. Webster is a long mountain with precipitous flank on the side towards the Saco. It is directly opposite the Willey house. It is one of the main features of the notch.

The east flank of the mountains, from Monroe to Webster, is washed by the powerful Mt. Washington river, which forms the central line of Cutt's grant, heading in Oakes's gulf. It is the proper continuation of the Saco valley, its source being several miles farther away than the small pond near Crawford's. In dry seasons the water may be low, which fact, in connection with a broad, gravelly expanse of decomposed granite near the lower end of the valley, gave rise to the early appellation of "Dry river."

IV. Lake District. This consists largely of the hydrographic basin of Winnipiseogee lake, with sandy plains carrying the tributaries of the Saco. It is normally a plain with four isolated mountain masses imposed upon it. These are the Gunstock and Belknap mountains, Red hill, Ossipee mountains and the Green mountain in Effingham. All these mountains are composed of igneous material, which seems to have been poured out over an uneven floor of rocks deposited in the Montalban period.

V. The Merrimack Valley District. This includes more than the hydrographic basin on the west, and less on the north. It is bounded by the White mountains on the north, extending as far as Woodstock in the valley; on the north-east by the Lake district, which extends close to the Pemigewasset in Ashland; on the east by the coast slope; slightly on the south-east and entirely on the south by Massachusetts; on the west by the Connecticut valley district, or, more exactly, the eastern boundary of the Coos quartzite. It may well represent the average physical appearance of New Hampshire, consisting of numerous hills and mountains, mostly cultivable, interspersed with sandy plains, alluvial flats, and entirely underlaid by gneissic or granitic rocks. It is much the largest of the topographical districts. There are only two marked topographical divisions of this tract,—the double mountainous range along the western borders, and the Merrimack valley.

Heights along the Principal Water-shed of New Hampshire. The main water-shed of New Hampshire runs nearly parallel to Connecticut river, and in fact forms the eastern rim of that hydrographic basin. It is of special importance to one studying the topography of the state, and for that reason is given here as fully as possible.

From near the north corner of the state to Mt. Washington, this line skirts the Androscoggin basin. It borders the Saco waters only from Mt. Washington to Mt. Field. From here to Massachusetts the line agrees with the west border of the Merrimack system. The line may be divided into three sections: First, averaging 2,000 feet elevation to the base of Mt. Madison. Second, the White Mountain division from Madison to Moosilauke, averaging nearly 4,000 feet. Third, the portion from Warren to Massachusetts, averaging about 1,500 feet. The lowest point in the northern section is at the Milan summit on the Grand Trunk Railway, 1,087 feet. The lowest point in the White Mountain line is at the notch, 1,914 feet. The Franconia notch is nearly the same, being 2,014 feet. The lowest point in the entire line is at the Orange summit of the Northern Railroad, 990 feet. The next lowest point is at Warren, 1,063 feet. It is followed by the railroad cut at Milan, 1,087, and at Newbury, 1,161 feet, for the natural surface of the ground. Two projected railway lines cross the southern section, with the height of 1,560 feet in Stoddard, and of 1,265 at Harrisville.

	Feet
Ridge between Lake Magalloway and Third lake,	2917
M. Abbott (Kent), estimated,	2800
Mt. Carmel,	3711
Two miles south of Second lake,	2030
Magalloway mountain (est.)	2600
Ridge (est.)	2500
Mt. Pisgah,	2897
Near Diamond ponds, Stewartstown,	1723
Dixville notch,	1858
Table rock,	2464
Peak in Erving's Location,	3156
Divide between Nash and Sims streams,	1715
Milan summit, G. T. R.,	1087
Pond of Safety, Randolph,	1973
Randolph mountain, Randolph,	3043
Divide between Moose and Israel's rivers, Randolph,	1446
Mt. Madison,	5365
Gap between Madison and Adams,	4912
Mt. Adams,	5794

	Height in ft.:
Gap between Adams and Jefferson,	4039
Mt. Jefferson,	5714
Gap between Jefferson and Clay,	4979
Mt. Clay,	5553
Gap between Clay and Washington,	5417
Mt. Washington,	6293
Gap between Washington and Monroe,	5100
Lake of the Clouds,	5009
Mt. Monroe,	5384
Little Monroe. W. S. W. of Monroe,	5204
Mt. Franklin,	4904
Gap between Franklin and Pleasant,	4400
Mt Pleasant,	4764
Gap between Pleasant and Clinton,	4050
Mt. Clinton,	4320
Mt. Jackson,	4100
Mt. Webster,	4000
White Mountain notch,	1914
Mt. Willard (est.)	2570
Mt. Field,	4070
Divide between East Branch and New Zealand river,	2123
Twin Mountain,	4920
Gap (est.)	3000
Haystack,	4500
Mt. Lafayette,	5259
Franconia notch,	2014
Profile mountain,	3850
Valley (est.)	2850
Mt. Kinsman,	4200
Mt. Blue,	4370
Woodstock notch (est.)	1655
Moosilauke,	4811
Oliverian notch, B. C. & M. R. R.,	1063
Webster Slide mountain, Warren	2210
Road over Ore hill, Warren,	1542
Piermont mount., Piermont (est.),	2500
Water-shed south-east of Indian pond, Orford,	1100
Mt. Cuba, Orford,	2927
Gap between Rocky pond, Wentworth, and Quinttown, Orford (est.),	1438
Smart's mountain, Dorchester (est.),	2500
Dorchester valley, lowest point (est.),	1250
Ridge east of Dorchester, Canaan valley,	2137
Divide in road from Orange to Groton (est.)	1600
Hoyt hill, Orange (est.),	1700
Orange summit, N. R. R.,	990
Ford Hill, Grafton,	1800
Prescott hill, Grafton (est.),	1700
Aaron's ledge, Springfield (est.),	1800
Divide in road from Springfield to Grafton (est.),	1600
High land to the south-east (est.)	1750
Divide in road near Mud pond, Springfield,	1383
Col. Sanborn hill (est.),	1000
Divide between Little Sunapee and Pleasant pond, New London (est.),	1300
New London,	1355
Between New London and Sunapee lake, lowest point,	1200
N. W. corner of Sutton (est.)	1700
Chalk pond divide, Newbury (est.)	1260
Ground above railroad cut,	1181
Lowest natural ground 400 feet south of summit,	1161
Sunapee mountain,	2683
Ridge west of Washington village,	1463
Summit on Forest road survey,	1500
Stoddard, Coast Survey station,	2170
Harrisville, railroad summit level	1265
Mt. Monadnock,	3186
Kidder mountain,	1492
Barrett's mountain,	1847
Ashburnham summit,	1084

COOS COUNTY

Mount Dustin, College Grant,	2575
Half moon mountain, College Grant,	2526
Mt. Ingalls, Shelburne,	2520
Hampshire hills, Cambridge,	1682
South spur of Hampshire hills, Cambridge,	2141
Randolph mountain, Randolph,	3043
South Peak, Kilkenny,	3827
Long mountain, Odell and Stark,	3777
Green's Ledge, Kilkenny,	2708
Jewell hill, Whitefield,	1467
Mt. Pisgah, Clarkesville,	2897
Pilot mountain,	3640
Mt. Starr King,	3800
Peak in Erving's Location,	2786
Mt. Lyon, Northumberland,	2735
Percy peak, South, Stratford,	3336
Percy peak, North, "	3140
Mt. Forist, Berlin,	1950
Chickwalnipy, Success,	1460
Sugarloaf, Stratford, (est.),	3470
South hill, Stewartstown, (about),	2000
Mt. Carmel,	3711
Mt. Washington,	6293
Mt. Adams,	5794
Mt. Jefferson,	5714
Mt. Clay,	5553
Mt. Monroe,	5384
Little Monroe,	5204

	Height in ft.
Mt. Madison,	5365
Mt. Franklin,	4904
Mt. Pleasant,	4764
Mt. Clinton,	4320
Mt. Jackson,	4100
Mt. Webster,	4000
Cherry mountain, (approx'ly)	3670
Mt. Deception,	2449
Wildcat mountain,	4350
Mt. Carter, north peak,	4830
Mt. Carter, south peak,	4702
Mt. Moriah,	4653
Mt. Royce, Bean's Purchase,	2600

GRAFTON COUNTY,

Moose mountain, Hanover,	2326
Mt. Cuba, Orford,	2927
Prospect mountain, Holderness,	2072
Mt. Cardigan, Orange,	3156
Bristol peak, Bristol,	1785
Ford hill, Grafton,	1800
Stinson mountain, Rumney,	2707
Mt. Lafayette, Franconia,	5250
Bear mountain,	3400
Owl's Head, Benton,	2992
Moosilauke mountain, Benton,.	4811
Sugarloaf, Benton,	2565
Peaked hill, Bethlehem,	2042
Gilmanton hill, (summit between Franconia and Littleton,	1329
Campton mountain, Campton,	2879
Baldtop mountain, Wentworth,	2050
Squam mountain, Holderness,	2162
Piermont mountain, Piermont,	2167

MOUNTAINS IN WATERVILLE.

Welch mountain,	3500
Mt. Whiteface,	4007
Tripyramid, four peaks from south to north	4100 4100 4200 4000
Mt. Passaconnaway,	4200
Mt. Osceola,	4397
Black mountain, "Sandwich Dome,"	3999

MOUNTAINS IN PEMIGEWASSET.

Mt. Hancock, Pemigewasset peak,	4420
Mt. Carrigain,	4678
" " east spur,	4419
Mt. Nancy,	3800
Mt. Lowell, Brickhouse mountain,	3850
Peak between Mounts Nancy and Lowell, Bond,	4000
Mt. Willey,	4300
Highest peak of Willey chain,	4330
Mt. Field,	4070
Echo mountain, Guyot,	3170
Twin mountain,	4920
Two peaks south of Twin,	4900 4800
Mt. Flume,	4500
Mt. Liberty,	4500
Mt. Lincoln,	5101
Mt. Kinsman, (about),	4200
Blue mountain, (highest of the Kinsman range),	4370
Mt. Cannon (Profile) (approx),	3850

MOUNTAINS IN WARREN.

Mt. Black,	3571
Mt. Kineo,	3427
Mt. Cushman,	3326
Mt. Waternomee,	3022
Mt. Mist,	2213
Webster Hale mountain,	2210
Mt. Sentinel,	2032
Carr's mountain.	3522

MISCELLANEOUS MOUNTAINS.

Mt. Pawtuccaway, Nottingham, middle summit,	892
Saddleback mountain, Northwood,	1032
Barrett hill, Greenville,	1271
Bald mountain, Antrim,	2039
Pack Monadnock, Peterboro,'	2289
Barrett mountain, New Ipswich,	1847
Uncanoonuc, east peak, Goffstown,	1333
Crotched mountain, Francestown,	2066
Symmes hill, Hancock	1317
Kidder mountain, New Ipswich,	1492
Temple mountain, Temple,	1755
Monadnock, Jaffrey,	3186
Mt. Pitcher, Stoddard,	2170
Bald hill, Gilsum,	1164
Duncan hill, Hancock,	2003
Gunstock, C. S. station	2394
Mt. Belknap,	2062
Gilmanton peak,	1479
Blue mountain, Strafford,	1151
Wadleigh's hill, Meredith,	860
Sunset hill, Center Harbor,	885
Blue mountain, Milton,	1415
Bald Mink hill, Warner,	1528
Craney hill, Henniker,	1420

	Height in ft.
Rattlesnake hill, Concord.	783
Stewart's peak, Warner,	1808
Croydon mountain, Croydon,	2789
Melvin hill, Springfield,	2234
Sunapee mountain, Newbury,	2683
North Putney hill, Hopkinton,	858
Fort mountain, Epsom,	1428
McKoy's mountain, Epsom,	1690
Ragged mountain, Andover,	2256
Mt. Kearsarge, Warner,	2943
Mt. Ascutney, Windsor, Vt.,	3186
Bean hill, Northfield,	1515
Lovell's mountain, Washington,	2487
Mt. Crawford.	3134
Mt. Resolution,	3400
Giant's Stairs,	3500
Trimountain,	3393
Silver Spring mountain, (est),	3000
Green's Cliff,	2958
Table mountain, 8 miles S. S. E. from Hart's Ledge,	3305
Mt. Israel; Sandwich,	2880
Great Moose mountain, Brookfield,	1404
Cropple Crown, Brookfield,	2100
Mt. Chocorua,	3540
Mt. Pequawket	3251
Red hill, south peak,	1769
Red hill, north peak,	2038
Ossipee mountain,	2361
Green hills, Conway,	2390
Tin mountain, Jackson,	1650
Mt. Baldface, Jackson,	3600
Double Head, Jackson,	3120
Iron mountain, Bartlett,	2000
Mote mountain, Albany	3200
Mote mountain, south peak,	2700

Height of Villages in ft. above the ocean.

Portsmouth,	48	Bradford,	670
Exeter	62	Concord,	292
Northwood,	590	Acworth,	1397
Deerfield,	494	Meriden,	912
Newton,	156	Claremont,	567
Greenville,	803	Newport,	822
New Ipswich,	914	Lebanon,	524
East Wilton,	330	Hanover,	545
Peterborough,	744	Plymouth,	473
North Weare,	489	Haverhill,	710
Amherst,	300	Littleton,	817
Nashua,	152	Orford,	438
Manchester,	217	North Conway,	521
Fitzwilliam,	1150	Jackson,	759
East Jaffray,	1032	Upper Bartlett,	660
Stoddard,	1412	Sandwich,	648
Walpole,	365	Whitefield.	957
Harrisville,	1334	Lancaster,	870
Rochester,	226	Gorham,	812
Dover,	72	Shelburne,	723
Salmon Falls,	107	Berlin Falls,	1035
Great Falls,	178	Stark,	972
Farmington,	300	Colebrook,	1030
Sanbornton Square,	030	North Stratford,	015
Tilton,	478	West Stewartstown,	1055
Meredith Village,	542	Groveton.	001
Pittsfield,	520	Crawford House,	1899
Franklin,	343	Glen House,	1632
Henniker,	455	Profile House,	1074

VI. Coast Slope. This greatly resembles the lower Merrimack country. It starts from the mountainous ridge bordering the Lake District on the south, and is bounded westerly by the Merrimack river basin. The northerly boundary consists of the following eminences, running in an easterly direction: Mt. Bet, Mt. Holly, Cropple Crown mountain, and Birch Hill, with the Rattlesnake mountains for foot hills in New Durham; the Great Moose, Bald, Hall, and Parker's mountains in Middleton. The range is cut through by Fellow's branch of the Salmon Falls river in Wakefield (Union Village); and the hills to the east, in Milton, are low.

In general, it may be stated that the entire northerly and westerly borders of this district, as represented upon the map, are the lines of highest elevation, or the rim-edge of a basin, which slopes gently towards the ocean, having miscellaneous ridges and isolated peaks scattered at random over its surface.

The Isles of Shoals belong to the coast

slope, being remnants of land that may formerly have been connected with the continent. As they are little elevated above the tide, most of the loose materials have been washed away by the severe north-east storms occurring off our coast. I found on Star Island boulders that had been derived from the main land thirty or forty miles distant.

TOPOGRAPHICAL MAPS OF THE STATE.

One of the first essentials to a knowledge of the natural resources of a state is an acquaintance with its topographical features in relation to population. The position of villages, mountains, roads, streams, lakes, etc., must be known before any kind of important commercial transactions can be effected.

The first known map of the state was edited by Joseph Blanchard and Samuel Langdon, and published at Portsmouth in 1761.

In 1773 and 1774, Capt. Samuel Holland made a survey of the province at the public expense. Owing to the disturbances, which commenced immediately afterwards, the map was not engraved till 1784, in London, and by the direction and at the expense of Paul Wentworth, Esq. Belknap says of it, in the third volume of his history, bearing date of 1792, in the preface: "Those parts which were actually furnished by Holland, or his assistants, are laid down with great accuracy. The eastern boundary line and the parts connected with it were not surveyed, but taken from such materials and information as could at that time be collected." Belknap has compiled a smaller map from Holland's for his work, upon which he placed a few improvements, including the straight line finally agreed upon by the assembly to take the place of the conspicuous "Masonian curve," appearing both upon Holland's and Carrigain's map.

The following is the title of the map upon its face:

A Topographical Map of the State of New Hampshire: Surveyed under the Direction of Samuel Holland, Esq., Surveyor General for the Northern District of North America; by the following Gentlemen, his Deputies: Mr. Thomas Wright, Mr. George Sproule, Mr. James Grant, Mr. Thomas Wheeler and Mr. Charles Blaskowitz. London: Printed for William Faden, Geographer to the King. Charing Cross, March first, 1784.

Carrigain's Map.

The legislatures of 1803 and 1805 directed that a map of the state should be compiled under the direction of the secretary of state, Philip Carrigain, from town surveys returned to the secretary's office. The map was made by joining together numerous separate surveys of townships made by different engineers, and consequently of variable value. It was not published till 1816.

The following is the title of it.

New Hampshire. By recent survey made under the Supreme Authority and published according to law by Philip Carrigain, Councillor at Law and late Secretary of State. To His Excellency John Taylor Gilman, Esq., and to the Honorable the Legislature of New Hampshire, this map commenced under their auspices and matured by their patronage is most respectfully inscribed by their obliged servant, Philip Carrigain. Concord, 1816.

Connected with this title is a large colored vignette, six by ten inches in dimensions. The title is inscribed upon the side of a shield-like cliff, with evergreens upon its summit, and an eagle feeding her young. Behind are several very high mountain peaks. On the left is a large cataract adjacent to the Willey House, and a hunter shooting at a moose on the border of a lake,—perhaps Winnipiseogee. On the right seems to be the ocean leading out of Portsmouth harbor, with a tower on an island, large ships, and a long arched bridge leading to Portsmouth. Nearer to the front is an extensive canal lock, and people engaged in agricultural operations,—ploughing and fishing. Directly in front of the title shield are miscellaneous objects, as cannon, the state insignia, rolls, baskets, etc. The name of the state is written in very large letters over the vignette, and the dedication is placed beneath. Three side sketches are the gap of the White Mountains, view of the Great Boar's Head with Hampton Beach, and the White Mountains from Shelburne.

The general appearance of the map is a great improvement over Holland's, having been engraved upon copper. The mountains, rivers, and various boundary lines are given with much greater precision.

Improvements Incorporated into the Map.

Survey of the northern boundary by the United States government, in accordance with the treaty of 1842. Noticed upon pages 21, 171.

Operations of the United States Coast Survey south-east of a line from Mt. Washington to Mt. Monadnock.

Triangulation of several points under the direction of the geological survey in 1869. See full report further on.

Triangulation of the geodetic connection survey under the direction of the United States Coast Survey, E. T. Quimby, acting assistant. See page 47.

County maps. From 1855 to 1860 careful odometer surveys were made of every county in the state, and the results published by subscription. The scale was usually about an inch to the mile; and the most valuable portions of them relate to the delineation of the highways. Existing surveys of lakes, water-courses, boundary lines, railroads, and other topographical features, were made use of wherever practicable. A map constructed simply from these odometer maps would produce a new draft much superior to Carrigain's, for the number of surveyors is greatly reduced, and there is consequently less opportunity for discrepancies where different plans are matched together. These surveys cost over twenty thousand dollars, and their most valuable features are retained in the new draft.

Maps of the White Mountains by Bond, Boardman, and Guyot.

Two maps of Connecticut river.

Observations of detail by all who have been connected with the geological survey from the very first. Efforts have been made constantly to discover and correct every possible error, no matter how minute.

Maps of several tracts of forest land, particularly of Success, Cambridge, Errol, College grant, Carlisle, Pittsburg, Bean's purchase, Waumbek, Hart's Location, etc. ,furnished by the proprietors.

For the delineation of mountain ranges, use has been made of the facts given in the chapter upon Altitudes.

Numerous geographical positions determined by the Coast Survey and the Geodetic Connection Survey.

The accompanying maps show the scheme of the triangulation under the charge of Prof. E. T. Quimby, its progress thus far, and the former Coast Survey stations with which it is directly connected. The base from which this triangulation proceeds is the line Monadnock–Uncanoonuc. Although these results are not to be considered final, it may be remarked that the latitude and longitude of Gunstock, as computed from the base Monadnock–Uncanoonuc, through this triangulation, differ from the former results of the coast survey only 00″.03.

GEOLOGY.

BY C. H. HITCHCOCK.

THE Geological structure of New-Hampshire has never been understood until very lately. The geological maps of the United States usually represent the rocks as entirely "primary" or "metamorphic," but attempt no division of them. Logan's map leaves the area uncolored altogether.

Two theories have prevailed respecting the formations of this state. The earliest supposed the granite masses to have been ejected from beneath, and to have broken apart the gneiss and slaty rocks in their progress to the surface. This view was presented by Prof. O. P. Hubbard* and Dr. C. T. Jackson.† These rocks were all supposed to be the oldest known upon the continent.

More recently the "metamorphic" theory pervaded the minds of American Geologists, and it was supposed that our formations were of the same age with the Silurian and Devonian strata containing fossils in New-York, Pennsylvania, etc. The change called metamorphism was believed to have altered the character of the strata, rendering sedimentary rocks crystalline, and thus obliterating the fossils. These views were based partly upon the supposed superior position of the crystalline schists over fossiliferous strata. No extensive exploration of the rocks in New-Hampshire was ever attempted by any advocates of this theory. These views prevailed from about 1840 to 1870. They were supported by Professors H. D. and W. B. Rogers, James Hall, Sir W. E. Logan, T. Sterry Hunt, J. P. Lesley, and others. In 1870 Dr. Hunt announced a change in his views.

The impossibility of explaining all the phenomena by the two preceding theories, led the author to adopt a new one. It was suggested partly by field studies in Massachusetts, Maine and Vermont, and shadowed forth in the annual reports to the Secretary of State from 1869 to 1872.

In general the new views refer the great mass of our rocks to the older groups, corresponding to the "primary." A few slates and limestones are of Silurian age, as proved by their contained fossils. The granites seem to have been poured out in a fluid condition, and to have occupied depressions on the surface. We have also divided the crystalline rocks more minutely than has been done elsewhere, and for the want of names have been obliged to invent new ones from localities within the state.

The strata seem to belong to the Laurentian, Atlantic, Labradorian and Huronian systems of the Eozoic series, and to the Cambrian and Silurian of the Paleozoic. The Eozoic series is well represented; and as the state must have been largely out of water during all the later periods of geological time, no intimation is given of what transpired after the time of its elevation.

* American Jour. of Sci. 1, Vol. xxxi. 1837.

† Report on Geology of New-Hampshire.

It is very difficult to identify one set of crystalline rocks with another. Evidence derived from mineral structure must always be inferior in value to that afforded by fossils. Superposition when very plain lies at the foundation of the structure of the paleontological column, but may be deceptive in the absence of relics of life. The basis of our theory of the stratigraphical structure rests upon superposition, or in the case of inversion to a study of the topographical arrangement of what seem to be continuous formations, often so considered on account of their mineral composition.

Those who are unwilling to accept our theory, which has been derived entirely from a study of the rocks in the field, must show its falsity by means of facts acquired by the same pains-taking method.

The following scheme may represent the stratigraphical column of New-Hampshire, commencing at the bottom.

EOZOIC.	*Laurentian.*	Porphyritic gneiss,
	Atlantic.	Bethlehem group, Lake Winnipiseogee gneiss, Montalban or White Mountain series, Franconia breccia.
	Labrador or Pemigewasset.	Conway granite, Albany granite, Chocorua granite, Ossipyte, Compact feldspars, Exeter syenites.
	Huronian.	Lisbon group, Lyman group, Auriferous conglomerate.
PALEOZOIC.	*Cambrian*	Rockingham schists, Calciferous mica schist, Coös group, Clay slates, Mt. Mote conglomerate.
	Silurian	Helderberg limestones, slates, conglomerates, etc.
CENOZOIC.	*Alluvium.*	Glacial drift, Champlain clays, Terrace period.

THE GEOLOGICAL SURVEYS.

In 1839, the Legislature of New-Hampshire authorized a Geological and Mineralogical survey of the state, and in September Dr. C. T. Jackson was appointed to take charge of it. Explorations were commenced in 1840, and prosecuted for three years. Several assistants were employed, most of them serving but a single season. J. D. Whitney, Jr., assisted both in the field and laboratory for the year 1841; M. B. Williams aided in the field the same year; W. F. Channing assisted in the field during 1842; Eben Baker served in the autumn and winter of 1842; John Chandler assisted in the laboratory in 1843. Dr. Jackson published the following reports.

First Annual Report, Concord, 8vo. 164 pp., 1841.
Second Annual Report, Concord, 8vo. 8 pp., 1842.
Final Report, Concord, 4to. 379 pp., eleven plates, 1844.
Views and Map of Final Report reprinted, Boston, 4to. 20 pp., 8 plates. 1845.

In 1868 the Legislature authorized a new survey, to the charge of which the author was appointed. The assistants for the first year were G. L. Vose, now Professor of Engineering in Bowdoin College, Me., J. H. Huntington, of Norwich, Ct., and Prof. C. A. Seely, of New York, Chemist. Prof. Vose resigned after the first year, but the others have continued their connection with the survey to the present date. In 1870 Prof. A. M. Edwards, of New York, was appointed microscopist. Other gentlemen have rendered valuable assistance as volunteers.

The following publications have appeared in connection with the present organization. The law provides that there shall be only brief annual reports, the principal details being reserved for the final report. The fourth title represents a book not published under state auspices, but describing labors indirectly connected with the survey.

First Annual Report 12mo. 36 pp., one map, 1879.
Second Annual Report, 12mo. 37 pp., one map, 1869.
Report for 1870, 8vo. 82 pp., 1871.
Mt. Washington in Winter, or the Experiences of a Scientific Expedition upon the Highest Mountain in New England, 1870–71, 12mo., 363 pp. Boston, Chick and Andrews, 1871.
Report for 1871, 8vo. 56 pp., one map, 1872.
Report for 1872, 8vo. 15 pp., one map, 1873.
Final Report. Vol. 1. Royal octavo, 680 pp. 54 full page maps and illustrations, 1874.

A sort of mineralogical map without colors, was appended to Dr. Jackson's Final Report. His scheme presents seven stratigraphical distinctions, viz. 1. Granite, sienite and gneiss; 2. Mica slate; 3. Quartz rock; 4. Hornblende rock; 5. Argillaceous slate; 6. Drift; 7. Alluvium. By means of symbols the following rocks and minerals had their localities designated: Talc, limestone, talc and soapstone, peat, iron, lead, zinc, tin, copper, pyrites, silver, gold, titanium, titanic iron, plumbago, beryl, mica, manganese, arsenic and molybdena.

Our first map delineates the distribution of the formations in the Ammonoosuc gold field, using the following names: 1. Gneissic or White Mountain series; 2. Staurolite schists; 3. Lower schists; 4. Copper belt; 5. Clay slate; 6. Auriferous conglomerate; 7. Upper schists. All these except the first, which lay beneath the others, were referred to the "Quebec Group," of Logan.

The map in the Second Report was designed to show the "Distribution of Granite," and the "Progress of Triangulation," but presents incidentally the following distinctions: 1. Gneissic or White Mountain series; 2. Exeter sienites; 3. Porphyritic granite; 4. Common granite; 5. Merrimack

group; 6. Quebec group; 7. Coos group; 8. Calciferous mica schist; 9. Clay slates.

The map in the Report for 1871 represents the following distinctions for the White Mountain District. 1. Porphyritic gneiss; 2. Bethlehem gneiss; 3. Gneiss not assigned to any division; 4. White Mountain or Andalusite gneiss; 5. Common granite; 6. Trachytic granite; 7. Brecciated granite; 8. Norian group, felsites and syenites; 9. Clay slate and quartzite; 10. Coos group.

LAURENTIAN OR PORPHYRITIC GNEISS.—As at present understood, this seems to be the oldest formation in the state. It is an ordinary gneiss carrying numerous crystals of orthoclase or potash-feldspar, from a quarter of one to two inches long. The longer axes of the crystals are usually parallel to the strata, and when arranged helter-skelter the rock should more properly be called granite than gneiss. In this case the granite has been derived from gneiss. Bands of common and ferruginous gneiss are associated with the porphyritic variety. The thickness and limits of the formation remain to be determined.

There are seventeen areas of this porphyritic rock in New-Hampshire. A very important one is that which starts on the south side of Mt. Carrigain, passes to Waterville beneath the Labrador, re-appears at the surface, courses southerly in a continuous line of exposures to Meredith, then comes back to Squam Lake, and then bends back again, and continues to Alton. To the west there are several ranges. The principal one terminates in the corners of Bethlehem, Littleton and Dalton, re-appearing in Franconia, and continuing interruptedly to Swansey, composing Mt. Kinsman, and the foot hills of Moosilauke, Mts. Cardigan, Sunapee, Lovewell, etc. The smaller areas need not be specified in detail.

The most important features of this formation are, 1. Its situation along the central part of the state, forming the "back bone" as it were, of New England. Being the oldest rock formed, it must have been dry land for a considerable period while the rest of New England, save the continuation of this rock southerly into Connecticut and its repetition in eastern Maine, was submerged. 2. The formations which succeeded were deposited simultaneously upon both flanks of this ancient ridge. 3. The ridge branches southerly, so that there must have been a gulf in ancient times in the hydrographic basin of the Merrimack River. 4. This ancient dry land underlies the White Mountains, and probably did not extend farther north than Stratford though not now seen beyond Dalton and Whitefield. 5. As a similar rock is described as occurring in Canada, this is believed to be of the same age, or the *Laurentian*, the oldest formation in the world, known to man.

THE ATLANTIC SYSTEM.

Our researches in New-Hampshire lead us to revive an ancient designation for the crystalline rocks along the Atlantic sea board in distinction from the Laurentian or Adirondack group. The rocks of this system extend continuously from Maine to Alabama, though nearly concealed by the superficial formations between New-York and Philadelphia. Our theory in regard to their age is that they are posterior in time to the Laurentian, but anterior to the Cambrian and later formations. There is a difference in their mineral character, and certain general considerations lead to the belief, that the eastern border of the Continent was built up after that which has for the past fifteen years been distinctively known as the Laurentian. I can classify them as follows in New-Hampshire. It remains to be proved by investigation in other states, whether any similar classification can be followed elsewhere. I cannot confidently give the formations in their proper order in time, without further study. 1. Bethlehem group. 2. Manchester or Lake Winnipiseogee range. 3. Montalban or White Mountain series. 4. Franconia breccia.

BETHLEHEM GNEISS.—There is an interesting talcose gneiss largely developed in Bethlehem and adjoining towns, which seems to constitute a formation entirely distinct from everything else. The orthoclase is abundant, usually pink or flesh colored, and mica is sparsely disseminated. It is granitic, also, occurring massive and without very distinct lines of stratification. In our earlier researches it was called granite. The additional feature which readily marks off this area from others, is the east and west strike common to the strata in Bethlehem. The area seems to cut across the line of the Coos and Huronian groups, as if it belonged to an older formation. The strike is more northeasterly in Whitefield. Other areas of this gneiss appear further south, as in Haverhill, where it cuts across the newer groups just as in Bethlehem, also in Lyme, Hanover, Lebanon and elsewhere. Further researches will increase the area of this formation upon the map.

The greater age of the porphyritic gneiss may be seen in a section, from Bald Mountain in Franconia to the northwest corner of Bethlehem, where it is seen to form a synclinal axis or basis, in which the talcose rock reposes, but with the strata apparently monoclinal, in consequence of the enormous pressure to which the rocks have been subjected.

MANCHESTER OR LAKE RANGE.—This term may apply to a band of gneiss extending through Manchester from Mason to Deerfield. It is characterized by predominating in feldspar, while the strata are often obscured, being nearly converted into granite. A similar range is found in Berlin.

To the northwest of the Manchester range is a band of common gneiss, having in it two interesting bands of quartz. The latter may be repetitions of the same bed. They have been traced, one from Temple and the other from Mason to Allenstown. A similar gneiss, carrying the same quartz, extends from Richmond to Franconia in the western part of the state. The most characteristic rock of this age, underlies Lake Winnipiseogee.

MONTALBAN OR THE WHITE MOUNTAIN SERIES.—The latter term was employed originally to designate territorially, the central gneissic and granitic region of the state, including what is now referred to the Laurentian and Atlantic divisions. The rock is often characterized by the presence of the mineral *andalusite*. Any one who has observed the rocks upon Mt. Washington along the travelled routes from Ammonoosuc to the Half-Way House on the carriage road, may recall crystalline bunches like small, woody, weather-worn chips scattered through the ledges. This mineral is called *andalusite*, and occurs abundantly in the White Mountains, though not universally. The rock containing it forms the main mass of the Mt. Washington range from Gorham to Hart's Location, ending with Mt. Webster. It extends easterly to the Maine line between Success and Wakefield, and perhaps farther south. Two interesting but isolated areas of it occur in Odell and Essex County Vermont. On the west it appears along the valley of Pemigewasset and is extensively developed in the central and southern portions of the state.

In some regions the andalusite is very abundant, as in Weare and Francestown. A valuable bed of soap-stone is contained in this variety of rock. It has been detected in Warner, Weare, Francestown, Richmond, and very likely in Keene. One of these beds is especially noteworthy on account of its use in the arts.

The Francestown Soapstone Co. with a capital of $300,000 and large mills for sawing at Nashua, commenced to quarry their rock in May 1860. The bed was discovered by Mr. Fuller in 1800, when his harrow struck a soft rock. It was wrought extensively by Mr. Fuller and his son after him, for many years, and probably 2,000 tons of stone, in all, were sold by them. In 1866, 1,500, and in 1867, 2,020 tons were sold. Even the dust and refuse fragments are preserved and sold for packing. The opening is 80 feet long, 40 wide, and 80 deep, being a little wider at the bottom. On the surface the bed has been traced for 400 ft. 3,700 soap-stone stoves were made by the company in 1867.

Recent discoveries establish the relations of the White Mountain series to the adjoining groups. Its upper limit is defined in the valley of Dry River, where it is unconformably overlaid by Ossipyte, and lower down by the common granite, both of the Labrador series. General considerations, derived from studying its topographical relations to the porphyritic series, lead us to believe that it overlies the latter, and is therefore to be regarded as above the Laurentian.

This conclusion differs from that put forth by Dr. T. Sterry Hunt in 1870, who includes our Coos group with it, and regards the whole as of pre-Cambrian age. Our later researches tend to show that the White Mountain or andalusite gneiss, is separated from the andalusite slates of the Coos group by the whole of the Labrador system.

The New-Hampshire granites, which are best known as building materials, belong to this formation. They are quarried in Concord, Fitzwilliam, Milford, Farmington, Hooksett, Pelham, Salem, Marlboro, Troy, Sunapee and elsewhere. The familiar name of "Granite State" is very appropriate, as our resources in granite are rich, unlimited and

wide spread. It is probably found in greater or smaller amount in every town underlaid by the White Mountain series. Besides these there are other extensive granites of the Labrador series, and limited patches of indigenous and eruptive masses in the Merrimack and Coös groups.

These granites are commonly fine grained and nearly white in color. Most of these quarries are easily accessible by railways. Three of the Concord companies, the "Granite Railway," "Concord Granite," and "Donagan and Davis," sell $225,000 worth annually, or about 7,000 tons. The Custom House at Portland, Me., City Hall and Advertiser building in Boston, and Booth's Theatre in New York, were built of Concord Granite. The largest block ever sent out of the state weighed 22 tons and 580 pounds. According to the Census of 1860 there were four granite establishments or companies. $7,200 was the capital invested; the raw material cost $1,825; thirty-eight hands were employed; the cost of labor was $15,312 and the value of the material manufactured $23,540.

Some of the coarse granite veins contain large plates of mica, which are extensively quarried. Some plates have been taken out measuring a yard square. The Ruggles Mica Co., of Grafton, marketed 75 boxes of 350 lbs. each of mica in 1869, worth from $2.15 to $2.50 per lb. They employed twelve men for seven months of the year. Mica is also quarried in the south part of Grafton, Alexandria and Acworth, and is found in Springfield.

The valley of the Saco River in the White Mountain Notch has been excavated out of granite by atmospheric erosion. Mt. Willey on the west and Mt. Webster on the east are composed of flinty rocks, both less liable to decomposition than the granite. As they form an anticlinal, though with an average dip of 75°-80° on both sides, the granite is wedge shaped and consequently the disintegration has left very steep walls. This is like notches in granite in other regions, as on Willoughby Lake in Vermont, and in the famous Yosemite valleys of California. The formation of the Notch valley by simple denudation suggests the same reason for the formation of other valleys of similar shape, all over the country.

Along the edge of the schist and granite of Mt. Webster and further east there are enormous veins of granite, six, eight and ten rods wide, cutting into the schist for scores and hundreds of rods. This condition of things argues a large degree of plasticity in the granite when formed. A true eruptive granite, almost a diorite, occupies a considerable area on the flank of Mt. Webster, below the Crawford House. Most of the granite in the Ammonoosuc valley has the feldspar occurring in distinct crystals, porphyritic, not over half an inch in length.

Labrador System.—At first we could refer to this system only those strata which were composed largely of the mineral *labradorite*, a lime-feldspar. But an examination of the ledges shows a natural system of rocks, formed in one great period, which includes seven or eight members, most of them differing from the typical rock. They are, 1. Common or Conway granite. 2. Albany or spotted granite. 3. Chocorua granite. 4. Ossipyte. 5. Dark compact labradorite. 6. Dark compact orthoclase. 7. Red compact orthoclase. 8. Reddish orthoclase. 9. Syenites. We will first describe the rocks and their distribution, and afterwards give the reason for supposing them to constitute a single system.

Conway Granite.—The type of this rock appears at the Basin, Pool and Flume in Franconia, very often in Conway and at Goodrich's Falls in Jackson. The constituents are rather coarse, never more than an inch, and usually one-fourth of an inch long. The orthoclase is commonly flesh-colored and the most abundant ingredient. The quartz is smoky, translucent, and often roughly crystalized. The mica is black, and the least abundant of the three minerals.

The principal area of this rock is oval in shape, extending from Franconia to Chatham east and west, and from Carrol to Sandwich north and south. It seems to be continuous over this whole area, the interruption of continuity upon the map arising from the presence of overlying masses. It may be the same with the material underlying the Percy Peaks in Stratford. This granite is about six hundred feet thick in Franconia, and perhaps double this amount in the "Notch."

Albany Granite.—Whenever the common granite does not reach the crest of a hill in the White Mountain area, it is capped by another variety of trachytic or semi-porphyritic aspect. The feldspar is orthoclase, and it is scattered through the mass in rounded crystals imbedded in a granitic paste with scarcely any quartz. It often contains a small per cent. of manganese. The mountains made by it are the Twins, Haystack, Mt. Liberty, Mt. Osceola, and the Ossipee mountains south of the usual White Mountain area. The Chocorua granite is best developed upon Mt. Chocorua in Albany. It is of a greenish color, and seems to pass into labradorite.

The Labrador Feldspars.—None of these were discovered till 1871. Their importance leads us to describe fully the locality in Waterville, where they were first discovered. It is upon "Norway Brook," the head of Mad river, the site of the notable slide or freshet of 1869. Many ledges that would otherwise have been concealed on account of the easily decomposing character of the rock, were exposed to view by this rush of waters.

The first rock seen is a gneiss with nodular orthoclase, dipping by compass about 80° S, 70° W. The strata are indicated by folia of a dark hypersthenic mineral, often forming bunches or nodules. Jointed planes dipping about 25° westerly might be mistaken for strata. A few rods higher up the stream, the first ledge of the labradorite rock appears. Its junction with the gneiss is concealed by drift. For about a mile the ledges are mostly composed of this rock, a compound of labradorite and chrysolite, some exposures appearing for sixty or seventy feet. Mr. E. S. Dana of New Haven, Ct., has applied to this compound the name of *Ossipyte*, after the name of the tribe of Indians (the Ossipees) formerly inhabiting this region. It is a perplexing matter to determine the lines of stratification, as the outcrops are divided by two prominent sets of jointed planes, either of which might be called layers of deposition, the rock being essentially homogeneous. One set dip about 20° northerly, and are the most numerous. The other dips about 75° W. 10° S. Mr. Dana analyzed the two constituents of this Ossipyte with the following results, it being composed of the two minerals, labradorite and chrysolite.

1. Labradorite.

	I.	II.	III.	Mean.
SiO_2	51.04	51.02	....	51.03
$Al_2O_3 (TiO_2)$	26.34	26.07	....	26.20
Fe_2O_3	4.79	5.13	....	4.96
CaO	14.09	14.23	....	14.16
NaO	.....	.....	3 44	3.44
KO	.....	.....	.58	.58
				10 1.37

The large percentage of iron (determined volumetrically) had not been expected, as the eye had failed to detect any impurities in the fragments selected for analysis.' Some very thin pieces were afterwards examined under the microscope; and by this means it was found that even the clearest pieces contained very minute grains of an iron ore, from one fiftieth to one two hundredth of an inch in diameter, which were strongly attractable by the magnet. Microscopic dark specks less than one ten thousandth of an inch in size were also observed, and at first referred to the same cause; but, on magnifying them 800 diameters, it was concluded that they were air-cavities in the structure of the feldspar, and not any foreign matter. The peculiar, dark, smoky color of the rock is doubtless to be explained by the presence of these particles of iron ore.

This magnetic iron ore, a sufficient amount for the test having been picked out by the magnet, gave a decided reaction for titanic acid.

2. Chrysolite.

	I	II.	Mean.
SiO_2	38.82	38.88	38.85
Al_2O_3	tr.	tr.	tr.
FeO	28.00	28.15	28.07
MnO	1.12	1.36	1.24
MgO	30.88	30.36	30.02
CaO	1.26	1.60	1.43
	100.08	100.35	100.21

The oxygen ratio of the bases and silica afforded is nearly 1:1, and of the iron and magnesia about 1:2; whence the formula ($\frac{1}{3}$ FeO + $\frac{2}{3}$ MgO)$_2$SO$_2$. This is then a chrysolite, containing an unusually large per centage of iron (here a constituent of the mineral, and not owing to the presence of impurities). The amount of iron is not strange, considering the fact that the rock contains, diffused throughout it, so much free iron ore.

This chrysolite has the same ratio deduced for hyalosiderite, but still differs widely in

fusibility and other characters. It is, in fact, a true cbrysolite in all respects, while hyalosiderite is a doubtful compound, probably owing its fusibility in part to tbe potash present. B. B. tbe chrysolite is nearly infusible.

The following is Mr. Dana's analysis of anotber specimen of labradorite:

This feldspar has a grayish-white color, is destitute of iridescence, and only careful searching reveals any striations. Two analyses afforded,—

	I.	II.	III.	Mean.
SiO_2	52.15	52.36	....	52.25
Al_2O_3	27.63	27.39	....	27.51
Fe_2O_3	1.09	1.07	....	1.08
MgO	.92	1.06	....	.99
CaO	13.10	13.45	....	13.22
NaO	.....	.....	3.68	3.68
KO	.....	.....	2.18	2.18
				100.91

Botb analyses show that the lahradorite of tbis region is remarkahle for the large proportion of lime present.

Following up Norway brook tbe Ossipyte is abruptly succeeded by a syenitic rock, fine grained, witb little quartz and mica. Tbe feldspar seems to be Lahradorite. Tho line of junction is irregular, averaging tbe course N. 20° E., while the dip of the planes of separation is about 85° westerly. Some of this feldspathic rock has been injected into irregular cavities of the dark felsite. Still higher up, tbe stream has cut a deep notch into the mountain; and the rock is coarser grained, consisting of whitisb feldspar, whicb also is Labradorite according to recent analyses, with hornblende, titanic iron, and a little epidote. This stream has worn its way along a ferruginous band, whicb may indicate tbe true position of the strata, dipping S. 75° E. and N. 55° E. The surface is almost entirely decomposed, though recently uncovered. Large nodules of essentially the same rock, hut very tough, abound; also geodic cavities with orthoclase, albite, quartz and rarely stilbite.

Abovo the notcb tbe rock is like that immediately succeeding tbe dark compound of labradorite and cbrysolite, witb geodes, or feldspathic veins. At tbe point where the slide proper commences, and tho valley turns at right angles, tho dip curves, and a new variety of feldspathic rock is seen, which continues to the top of the mountain, the southern peak of Tri-pyramid. There is very little quartz, but two kinds of foldspar, one of tbem roddish, probably orthoclase. Mica is abundant and hornblende appears in rare specimens. The rock has a syentic aspect, containing geodes like those below, with actinoite, amethyst, and other minerals.

Other localities aro tho summit of the Mt. Lafayette ridge, tops of tho Twin Mountains, Loon Pd. Mt., north of the Tripyramid, nortb of Mt. Tom near the Crawford House, valleys of Dry River and Rocky Branch, Sable Mt., Jackson, Deer River valley near Mt. Chocorua, the Pilot Knob and Starr King mass of mountains between Randolph and tbe G. T. R. in Stark.

UPPER COMPACT FELDSPAR.—The dark variety is well shown upon Mt. Lyon in Northumberland. The red occurs plentifully as boulders in Waterville, but ledges on Deer River in Albany, and tbe soutb spur of the Twin mountains. The lighter varieties make up much of Mt. Carrigain, Little River mts. and peaks soutb of the G. T. R. They all seem to be arranged in horizontal masses.

SYENITES.—One mass whose feldspars are orthoclase, labradorite and andesite has been mentioned. Hornblende is not so common as mica in it. Rocks of allied character occur upon Red Hill in Moultonboro and Sandwicb, Mt. Gunstock and Belknap in Gilford, Mt. Monadnock of Vermont, near Colebrook, and elsewhere. These are refered to a period connected with the Labrador because tbe Tripyramid mass, though injected across ossipyte, contains tbe characteristic mineral. It is likely tbat the "Exeter Syenites" of our second report may provo to be of the same age, as there is a general mineralogical resemblance between them all. These have been described as existing in Seabrook, at the end of the Quincy granite range of Massachusetts, in a range following the B. & M. R. R. from Dover to Kingston. For the present they may be considered as having been erupted at the close of the Labrador age, in New-Hampshire.

HURONIAN.—Recent developments lead us to refer the formations hitherto called "Quebec group" in New-Hampshire, to the Huronian system, which seems to be older than the Coös group and newer tban tbe Labrador. There are three areas of it in the state. Tbe first extends about fifteen miles northerly from Bellows Falls. It may possibly join the next area, which is known to extend from the north edge of Charlestown along Connecticut river to Northumherland and Guildhall, Vt. Tbo third commences in Columbia and occupies most of the forest country about Connecticut Lake, passing into Maine and Canada. A portion of tbe second area was described in the first annual report as the Ammonoosuc gold field. The existence of gold along Connecticut river was first intimated in the Geology of Vermont, hy the finding of specimens at Springfield, Vt., and the comparison of the rocks with those of tbe auriferous district further west.* In the Geology of Maine it was also spoken of as one of the metals characterizing the scbist group extending from Bellows Falls to New Brunswick. The earliest discovery of gold in any part of it seems to have heen made by Mr. Hanshet in Plainfield, N. H., in 1854. About the same time Moses Durkee washod gold out of alluvium in Lebanon and Hanover.

The first discovery of gold in Lyman was made by Prof. Henry Wurtz of New York, in 1864. It was found in Galena. The next year J. Henry Allen and Charles Knapp, independently of each other, discovered gold in the rock in Lisbon. Tbis led to the organization of a mining company. In 1866 a better vein was found in Lyman, in the clay slate, and an association known as the Dodge Gold Mining Company formed to work it. Tbe two companies erected each a mill of ten stamps, and before June 1, 1869, had sold not less than $16,000 worth of gold. The vein is whitisb quartz, often glassy, characterized by masses of pyrites, ankerite, galena and slate scattered through it. Spangles of gold are common in the gangue. An examination of the rock and imbedded minerals showed that there was an average of $18.90 of gold to the ton, and tbat most of it was contained in the clear quartz, tho accompanying minerals being nearly destitute of it. The mineral character of this vein agrees with tbat of the auriferous sheets in Vermont and Canada. The gold is very nearly pure, containing only half of one per cent. of silver.

The shaft at tbe Dodge mine was sunk seventeen feet in 1867, and the rock taken out yielded $6.25 per ton in tbe mill. After that the whole vein was quarried to the same depth for several rods, and yielded from $3 to $4 per ton. Next the work was renewed upon the shaft itself, and to the depth of seventy feet, including two drifts of sixty feet each, the average yield has been $7 per ton in the mill. In 1870 rock was taken out at a still greater depth, which yielded less than $2.00 to tbe ton. In 1873, under the guidance of Dr. J. H. Rae, new excavations brought up rock yielding from $ 18. to $ 25. per ton. The mines are now being worked more successfully than ever before. Several other openings have been made in the neighborhood, both in the slate and schist.

A section (fig. 3) in Lisbon and Lyman gives the following tbickness for several formations. At the southeast end of the section, tbere are ordinary gneisses dipping about N. 20° W., and holding a band of azoic limestone, perhaps 100 feet thick, inclined 50°, wbich has heen extensively quarried hy Mr. Bronson. On the hillside toward the pond are friable gneisses, often very micaceous and carrying simple crystals of staurolite, dipping 30°, N. 60° W. This is hordered by a band of hornblende schist dipping in the same direction; 40° is the average for its whole width. The hornblende is an associate of the gneiss formation rather than of what follows. The estimated thickness of this gneissic group is 2,500 feet. It is not clear to which of the gneissic divisions it belongs, though allied to the White Mountain series in some respects.

Crossing Mink Pond is a gray, friable mica schist holding in profusion reddish staurolites and garnets, the locality heing one well known to mineralogists. The average dip heing 56°, tbe thickness must he 3,300 feet. This band is followed by the same garnetiferous slates which occur upon the

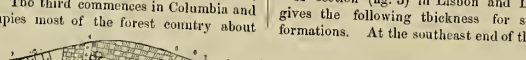


Fig. 3.—Section from Bronson's Lime Quarry to Smith's Brook, Lyman. 1, Smith's Brook; 2, Lisbon group; 3, Lyman group; 4, Auriferous Conglomerate; 5, Quartz veins; 6, Auriferous quartz; 7, Clay slate; 8, Lenticular quartz; 9, Lisbon group; 10, Lisbon village; 11, Swift Water series; 12, Coos slates; 13, Coos schists; 14, Milk Pond; 15, Staurolite gneiss and hornblende; 16, Limestone.

*Final Report Geology of Vermont, 1861, pp. 683, 521.

†Scientific Survey of Maine, Second Annual Report p. 349.

south branch of the Ammonoosuc. Staurolite is less abundant in this than in the previous band, and it is almost wanting in the western portion. With an average dip of 59°, this slate must be over 3,000 feet in thickness.

The next division I call the *Swift Water Series*. It contains first, quartzites and sandstones, 1,769 feet in thickness, resting upon the Coös group. This band contains an auriferous vein. Second, Hornblende schist 310 feet. Third, schist, concealed by drift, 240 feet. Fourth, Schists and slates 242 feet. I now divide the Huronian into two parts, the Lisbon and Lyman groups. The first, on the section line, is composed first of talcose conglomerates 756 feet; second, cupreous talcose schist, 3,539 feet. The Lyman group on the section consists of whitish schist conglomerates 200 feet. The last group is thicker than appears in this section, on account of a downthrow. These strata dip west, and are repeated in Lyman, so that we have evidence of the existence of a synclinal axis. The cupreous schists contain much more copper on the west side of the synclinal, on Gardner's mountain. At about the summit of this group is an interesting band of quartzose conglomerate, generally containing traces of gold, from 10 to two hundred feet thick. Being quite persistent it will prove of great value in mapping out the dislocations of this district. In one case it has been shifted laterally 1,300 feet, and with it, of course, the adjoining members.

In Coös county large masses of stratified diorite and serpentine characterize the Huronian. The diorites form mountains like Mt. Carmel 3,711 feet above the sea. Another member is a peculiar rough hornblende rock. extending to the north boundary from Colombia. Both steatite and dolomite occur in various localities along the Connecticut, and near the third Connecticut Lake.

Cambrian.—The discussions about the value of the Cambrian series are leading geologists to assign to this place in the column a thick mass of sediment, usually without fossils, and largely argillaceous in character. We may for the present place here the following groups. 1. Mica schists of southern New-Hampshire. 2. Merrimack group including argillo-quartzites in Coös county. 3. Coös group. 4. Clay slates. 5. Mt. Mote conglomerates.

Mica Schists.—These occur on the west side of the Exeter syenite range. They were formerly supposed to be a repetition of the Merrimack group on the west flank of an anticlinal. They had also been confounded with the White Mountain series. They are separable from the latter on account of the absence of feldspar and andalusite. Their areas are given only in part. Large beds of granite, and a range of quartzite belong to this series. Narrow ridges of it show the place of synclinals in the gneiss.

Merrimack Group.—These rocks consist of micaceous quartzites, sometimes mica schists and more or less argillaceous members, with interstratified beds of granite. In New-Hampshire this formation lies to the east of the Exeter range of syenite. It continues into Massachusetts, following the Merrimack valley to Lowell, and continuing south-westerly beyond Worcester.

Allied to them in character are certain argillo-quartzites in Northumberland, Stratford, Stark and Berlin. There is little beyond mineral character to correlate these two areas. The northern one has been disturbed by the movement of the Labrador rocks in such a way as to suggest a later age for them. Observation indicates that a narrow band of a slaty rock will be more broken up and thrown out of place than adjacent massive strata, so that the amount of disturbance may not necessarily indicate greater antiquity. These silicious rocks have been pressed so as to stand vertically against precipices of compact feldspar, supposed to consist of horizontal strata. But the schists do not pass under the feldspar, and hence we suppose them to be more recent in age. An extensive area of schists northwesterly from Umbagog Lake is probably referable to one of the above two groups. Latterly it has been suggested that this group belongs to the Huronian.

Coös Group.—This consists of quartzites, mica schist, both with and without staurolite, argillaceous schist, clay slates with garnets and obscure mica, possibly phyllite, calcareous mica schist, hornblende rocks and various sandstones. My third New Hampshire report gives four sections across this group, in Lisbon, Orford, Lyme and Hanover, with an average thickness of about 10,000 feet. Subsequent investigations modify all our published statements respecting this group. The limestone and gneiss of the sections must be eliminated; the proof of which is very evident. The gneiss in Hanover underlies the same succession of quartzite, staurolite, mica schist and hornblende rock in two or three localities along the same section line, and thus all the rocks are repetitions instead of one unbroken series. In Haverhill, the gneiss with limestone underlies the supposed Coös quartzite, with a strike differing from that of the latter as much as thirty or forty degrees. I do not find any regular gneiss in the Coös group anywhere in the State. It is a curious fact also that there are extensive ranges of what seems to be the Coös quartzite resting uncomformably upon the gneiss, without any connection with mica or hornblende schist. They must continue to be ranked as Coös till we have evidence to the contrary. The Coös group may also embrace the "calciferous mica schist" of Vermont. The original definition of this group expressly excluded the latter rock. Further study will be required to make this position a sure one.

Clay Slate.—This is common in Lyman and Bath. A study of its structure over this area shows it to be normally synclinal, and resting upon the Lyman group chiefly. This structure is best recognized in Bath. On passing northerly, the basin is broken up into fragments by the rising up of the uneven floor, the segments indicating irregularly the synclinal. But, after reaching the neighborhood of the Dodge gold mine, the strata are monoclinal, and continue thus till they disappear beneath the Helderberg. The case is analogous to those in Berkshire County, Mass., described recently by Professor Dana. Analysis of this slate in Lyman gave Professor Seely, silica 72·98, peroxide of iron 6·35, alumina 5·99, magnesia ·36, potash 5·61, soda 9·92 = 101·21. Thus this slate resembles the common schist of the Lyman series. Possibly it was derived from the decomposition of the latter.

The synclinal form of these slates confirms the general theory of structure in this neighborhood, already presented. For, if this area is a basin, it must lie upon older strata; and, if both sides of the slate are flanked by a similar succession of strata, the latter must be relatively older. In fact, this slate is flanked first by the Lyman schist, and that in turn by the Lisbon group. On the southeast, the latter joins on to the Coös series, and on the west it comes in contact with the same slate, in both cases newer rocks; but ultimately gneiss is found after one or more inferior undulations. The slate range on the west is supposed to extend to Bernardston, Mass., on West Mountain. On one section it has a thickness of 1,500 feet, with a maximum of 1,800.

Mt. Mote Conglomerates.—These are apparent upon the Mote mountains in Albany and Mt. Pequawket in Chatham. A brief sketch of this structure of Pequawket will best illustrate the character of the group.

The same granite which appears at the Flume, is found in the Green Hills, and all along through Conway, at Kiarsarge village, and in the lower part of Pequawket. Above this the Albany granite occurs upon all sides most distinctly. It is not abundant on the south and east, but very characteristic. On the south, it crops out on the hillside below the slate. About five hundred feet above the south base of Pequawket, and in the old footpath (that of 1840), occurs a ledge of clay slate, directly above the granite. This formation does not seem to extend far, as it is not found in either of the new paths up the mountain, and a very short distance from its lower boundary we pass beyond it and come upon the Mt. Mote group, of which the upper two thousand feet of Pequawket appears to consist, viz., an igneous felsite, full of pebbles. The greater portion of the included fragments are angular, slaty, lying at all angles, and range in size from an inch to a foot in diameter: They were all taken from Coös slate just below, whence it is clear that the Coös group is the older of the two.

Silurian.—Two groups of rock may be referred to this age, the Swift Water Series and the Helderberg. The first have been noticed in the description of the section passing through Lisbon and Lyman. The latter series is of the greatest consequence because fossils have been discovered in it.

The discovery of Helderberg fossils in New-Hampshire was announced as follows in a telegram addressed to Dr. T. R. Crosby, President of the Dartmouth Scientific Asso-

ciation: "Littleton, N. H., Sept. 28, 1870: No longer call New Hampshire Azoic. Silurian fossils discovered to-day." The dispatch was read the same evening to the Association, at a regular meeting. Not long afterward, E. Billings of Montreal reported upon the specimens. The corals appeared to be *Favosites, basaltica* and *Zaphrentis*, probably the same with those occurring near Lake Memphremagog in Canada. The crinoids were all small. Mr. Billings found nothing that would localize the horizon more definitely than the general term of Helderberg. The Owl's Head locality, fifty-five miles distant from Littleton, in Canada, has furnished the characteristic *Atrypa reticularis* and other species of the Upper Helderberg, enabling the Canadian geologists to represent upon their maps several narrow strips of the Upper Helderberg limestone.

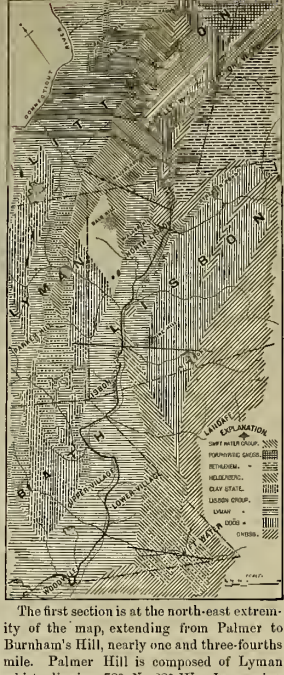
An allied rock bas long been known at Bernardston, Mass. It was first described by my father in the Massachusetts Report of 1833, with a drawing of the crinoidal stems. It has generally been considered as the equivalent of the Upper Helderberg or Corniferous limestone of New York, on account of the presence in both of enormous crinoidal stem-fragments.

The Memphremagog and Bernardston deposits lie upon the opposite sides of the same formation—the calciferous mica schist group of the Vermont Report, and Upper Silurian (supposed Niagara) of Sir W. E. Logan's Report—and separated by a distance of 165 miles. The mica schist is probably an older formation than the Helderberg, lying in a trough of clay slates, the latter constituting the floor of the fossiliferous beds. These slates may be Lower Silurian or Cambrian, judging from general considerations. No fossils yet appear in them. The calcareous schists carry a few obscure crinoidal fragments at Derby, Vt., which are of no value in the indentification of strata.

At first sight, one would declare that there is no similiarity between the Littleton and Bernardston rocks. After considerable study of both localities, I find a few points of resemblance, perbaps as much as we have a right to expect in synchronous deposits more than a hundred miles apart. In our studies, we often look for exact resemblances in remote localities. Perhaps it is better that the connecting tie he discovered with difficulty, in which case the conclusions may he moro suroly established. The surroundings at Littleton are different from those at Bernardston. Tho series rests upon a cblorite rock or hard green hydro-mica scbists, close by gneiss, and a whitish, soapy schist. At Bernardston, the underlying as well as the overlying rock is quartzite, and in the neighborhood are the mica and staurolite schists just described as the Coös group.

In order to make the descriptions of these fossiliferous rocks clear, I introduce a small map of the region wbere they occur and a few characteristic sections. The course of tbe sections is indicated by lines on the map, fig. 4.

Figure 4.



The first section is at the north-east extremity of the map, extending from Palmer to Burnham's Hill, nearly one and three-fourths mile. Palmer Hill is composed of Lyman schist, dipping 78° N. 28° W. In passing to the depression (which is in reality a watershed for the streams flowing northerly and soutberly), the strata first stand perpendicular; they then dip north-westerly; nnd finally several measurements in a distance of tbirty rods gave S. 34° E., 80° S. 10° E., and 85°, S. 35° E. The rock here (Closson's) is an indurated slate, chiefly siliceous. Next we pass up a bill, over the Lishon schist perhaps, dipping 80°, S. 15° E. On top of the bill there is a siliceous rock, which from different observers bas received the names of sandstone and buhrstone; it dips sometimes northwest, hut perhaps oftener to the southeast. On the nortb slope of tbe bill, the sandstone varies in position from about 80° S. 8° E. to S. 8° W. This rock can he followed a mile northeasterly across tho road going eastward to Mann's Hill, and then is supposed to turn and follow up the hill to tbe southeast of Burnham's bouse, and to continue soutb-west to Parker River. It has its maximum development on the east side of the basin, constituting what would be called a mountain range in many parts of the country.

Overlying the sandstone, as I suppose, is tho fossiliferous limestone. It has been excavated at several places quite extensively, and burnt in a contiguous kiln. It is usually of a light drab color, somewbat brecciated, and the fossils are not conspicuous, but upon search tbey prove to be considerably abundant; the thickness varies from ten to fifty feet. On tbe nortb side, tbe limestone forms a precipice of twenty feet, in consequence of excavations. The overlying slate is seen to best advantage in descending the hill toward Littleton. It is rather dark, soft, splits readily and contains fucoids and markings like *Chondrites*, and dip southeast.

Fig. 6 shows tbe most important of the sections, partly because it is near the traveled road to the Connecticut River west from Littleton village. It is one mile and three-eighths long. Tbe gneiss is the Oak Hill deposit, and is in place one-eighth of a mile north of the section, with a dip of 35°–40° N. 20° W. Tbe chloritic rock appears next. It is close by the road, opposite the last house hefore reaching Parker Brook, and can he traced along the ridge extending northeast for one-fourth of a mile. The dip is 60° N. 50° W., with a somewhat higher dip down the slope.

The fossiliferous limestone follows immediately. The first layer seems to conform with the wall rock. At the kiln, which is not fifty feet from the base, it dips 60° E. 5° S., and also westerly. Hence there is a small anticlinal axis. Directly at the kiln no fossils were obtained; they come from a dark layer with a westerly dip nearer the brook. The *Zaphrentis* and the *Favosites* with small crinoidal fragments are found here.

The alluvium of Parker Brook intervenes and conceals the rock for an eighth of a mile perhaps. On the southwest side there are several outcrops of limestone—some of them containing coral masses. A slaty mass witb no cleavage is mixed with it. The limestone near the first house on tbe west side of Parker Brook is bluish, and was at first supposed to belong to the Lisbon series—as it is not fossiliferous. It has been excavated for a kiln in years gone by. Recent researches indicate tbat tbe whole of this range extending into Lisbon, is of Helderherg age. The strata have somewbat of a zigzag arrangement, which need not be described in detail.

Directly heyond the brick kiln we find tbe chloritic rock in its perfection, dipping in the same direction with tbat already noted, hut at a steeper angle, and the range is only thirty rods wide. At a turn in the road, slate of less width, seemingly vertical, appears, and we discover imbedded in it two feet in thickness of compact crinoidal limestone. This identifies tbe slate with the deposit upon Fitch Hill, a quarter of a mile to the southwest,

Figure 5.

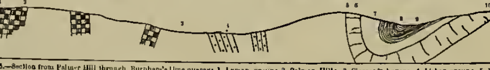


Fig. 5.—Section from Palmer Hill through Burnham's lime quarry; 1, Lyman group; 2, Palmer Hill; 3, Closson's house; 4, Lisbon group; 5, Farr Hill; 6, Quartz; 7, Helderberg limestone; 8, Slate; 9, Burnham's house; 10, Quartz.

Figure 6.

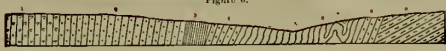


Fig. 6.—Section along carriage road westerly from Littleton village. 1, Green schists; 2, Chlorite; 3, Helderberg slate; 4, Chlorite; 5, Parker Brook; 6, Helderberg fossils; 7, Lime quarry; 8, Chlorite rock; 9, Gneiss (supposed).

Figure 7.

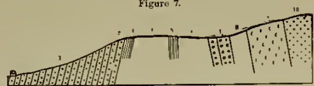


Fig. 7.—Section southerly from Fitch's house. 1, Chlorite; 2, Quartz; 3, Slates; 4, Fossils in limestone, 5, Slates, 6, Limestone; 7, Conglomerate; 8, Siliceous limestone; 9, Hornblende; 10, Sandstone.

whore the *Pentamerus* is found. The mingled slate and limestone extend up the hill and then across the ridge.

The chloritic rock re-appears on the section at a fork in the road, and continues uninterruptedly for three-eighths of a mile, dipping 75°–80° northwesterly. This would give a thickness of about 1,900 feet of strata. Fig. 6 shows the order of the rocks from Fitch's house to the summit of the hill. The first rock seen above Mr. Fitch's is the chlorite rock, running N. 65°–70° E., and containing a layer of white quartz. In the pasture the strike changes to nearly east and west, and this fact is made certain by the position there of the white quartz, which curves with the chlorite but may bo a little nearer the Helderborg after the bend is passed than before. This is confirmed by examining the rocks east of the Helderberg range. On fig. 6 above, there are thirty rods of chloritic rock east of the slate range, but on Fitch Hill, in consequence of the transverse course of the slato, it lies on the southeast of the chlorite altogether, as shown in fig. 7. To the southwest there is another outcrop of this range of chlorite, because the Helderberg is cut off by it, but the fossiliferous seam again covers it when the low ground is reached, and the hard rock is seen no more.

Furthermore, the contact between the Helderberg and chlorite on Fitch Hill is not a diroct succession or interstratification, since there has been a sliding of one rock over the other. The removal of the turf revealed a slickensides between the two. The limestono is followed by forty or fifty feet of coralline slate; thirty or forty feet of friable conglomerate, white when weathered, like the Oriskany sandstone of New York, the quartz pebbles being of the size of kernels of Indian corn. Next is a bluish, somewhat siliceous limestone of two sorts. Then follows considerahle tough, massive hornblende rock, with no signs of stratification and a strange associate of the Pentamerus limestone. On the very apex of the hill is a sandstone weathering white, but gray in the interior. It dips apparently 50° east of north. The section is about half a mile long.

Figure 8.

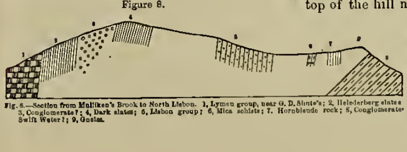


Fig. 8.—Section from Mulliken's Brook to North Lisbon. 1, Lyman group, near G. D. Shute's; 2, Helderberg slates 3, Conglomerate?; 4, Dark slates; 5, Lisbon group; 6, Mica schists; 7. Hornblende rock; 8, Conglomerate Swift Water?; 9, Gneiss.

The next section in fig. 8 is three and three-eighths miles long, and passes over more strata. It commences high up the early course of Mulliken's Brook, erosses Blueberry Hill, and terminates a short distance north of

Figure 9

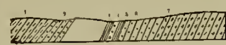


Fig. 9.—Section up South Branch, N. Lisbon. 1, Gneiss; 2, Conglomerate; 3, Slates; 4, Conglomerate; 5, Slates; 6, Lisbon group; 7, Coos group, staurolite slates.

North Lisbon, reaching the gneiss. At the beginning is the Lyman instead of the Lisbon group, though the latter would appear if tbe section had been elongated half a mile. Near G. D. Shute's house and "Indian Rock," theso schists dip 85° N. 20° W. The east bordor of this group dips 80° N. 30° W. It weathers whitish, presenting a chalky aspect at a little distance. Along the carriage road succeeding is an extensive range of Helderberg slates and limestones containing *Favosites*. Tbe strata stand perpendicular, running northeast. On a tributary stream, near C. Hastings's houso, is a fine exposure of grit, slates and calcareous beds, greatly resembling fossiliferous strata in Maine and New York, but they yielded no relics of life in a half-hour's search. This series of strata forms a steep cliff 70 or 80 feet high, which can be followed a mile and a half to the slate quarry. The country at the hase of the cliff is everywhere a swampy forest not intersected hy roads, so that its exploration is not inviting.

Passing up the hill, there is a coarse conglomerate. Near the top of Blueberry Hill are slates with the course N. 65° E., and irregularities which may be explained by supposing cleavage planes to be present having a different striko from tho strata. On the crest of tbe hill the slates dip 70° N. 25° W. This continues about half a mile on the line of section, or as far as I was ablo to travel upon it. There is room enough for the double thickness of slate seen in fig. 7.

Tbe eastern slope has not been examined throughout. About half way down I have twico examined ledges apparently of the Lisbon group dipping toward the hill. Mr. Huntington travelled over the remainder of the section, and his specimens seem to indicate, first, tho mica schists of the Coös group, (6) followed by considerable hornblende rock, (7) and lastly by a conglomerate (8) with whitish cement and pobbles of the size of buck-shot. This rock stands on edge on the top of the hill next the Ammonoosuc River, and, with the mica and hornblende schists, is perhaps our Swift Water series. The hornblende may connect with a large mass of the same rock a mile southwest, it being in contact witb Helderberg there. The hornblende may correspond with the same rock on figs. 5 and 6. The mica schists evidently belong to the Eustis Hill series, at the south of Littleton village, possibly disconnected from that outlier by erosion.

The gneiss at the southeast end is part ot, the area known as "Bethlehem gneiss," or rather the common variety upon its border. The mica is black, and the feldspar often scanty. The position differs from that of the other rocks. Its normal position is about 40° dip toward the north, both the inclination and course varying from tbose of the other strata that have been cited.

This section, if protracted, would cross another interesting Helderberg area; but for the sake of clearness, I will add a small section (fig. 9) with greater horizontal scale, situated about a quarter of a mile to the southwest, crossing the Ammonoosuc nearly at North Lisbon railroad station and passing up the "south branch." The gneiss dips 36° N. 35° W., at the "Lead mine." Next is a coarso conglomerate, seen in the field and under the bridge, dipping 65°–70° N. 10° W. As there is a general resemblance between this and the conglomerate of the Lisbon group, it was not till the recent discovery of extensive Helderberg strata that these ledges at North Lisbon appeared to belong to the Paleozoic series. Tho materials of the pebbles are white and bluo quartz, hydro-mica schist or Lisbon group, two or three gneisses, Coös slates and calcareous masses, with an argillo-micaceous pasto. Somo pebbles are a foot long. They are usually slaty but not distorted.

Crossing the river and walking over twenty rods of gravel, we come next to a more interesting locality in the south branch valley. The first ledge, back of tho last house on the road, is micaceous slate with calcareous layors, cut by an obscure igneous dike. The strata dip 45° N. 20° W. Beneath aro fifty feet of coarse conglomerate, containing, in addition to the pebbles under the bridge, pieces of the mica schist of the Coös group, without staurolite. These Helderberg conglomerates are estimated to be 500 feet thick. Tho slates next observed have a higher dip. They are followed by indurated slates dipping 50° N. 10° W. They are traversed by beauti d ribbons of banded trap from half an inch to three inches in width, which jump and curve in a fanciful way.

The next series evidently belong to the Lisbon group, having essentially the same strike and dip with the last mentioned beds. They extend for about twenty-five rods along the stream. The rock is a gritty hidro-mica schist much indurated. They terminate at a great bend of the stream, whero tbe water passes through a narrow gorge of clay slates containing staurolite and garnet, and dipping 60° N. 17° W. These ledges extend easterly for twenty-five rods, after which they are covered with boulder clay for a great distance. Tbe Lisbon group just mentioned, has heen traced across to the west of Streeter

Pond. The clay slates with staurolite seem to correspond perfectly with certain portions of the Coös group in Lyme and Lisbon.

The fossils thus far found, consist of *Favosites basaltica*, *Zaphrentis*, *Pentamerus Knightii*, large and small crinoidal-stem fragments, a gasteropod and fucoids. The third is the most important, since it determines the precise horizon of the limestone. Samples of all the varieties having been sent to Mr. E. Billings, he has written that the brachiopod is closely allied to the *Pentamerus Knightii* of the Lower Helderberg and the gasteropod likewise, while the other fossils do not as yet afford anything so definite in regard to geological equivalency.

Two points of importance suggest themselves in this connection. 1. The horizon at Littleton is different from the Helderberg at Owl's Head, Province of Quebec, which by the included *Atrypa reticularis* has been shown to be the Upper Helderberg. It is hence most likely that we have both the Helderberg limestones in New England, as well as the strata enclosed by them in New York. 2. If there is a limit, the facts indicate that the rocks all belong to the lower members and are therefore Silurian.

SURFACE GEOLOGY.

On account of the great altitude of the White Mountains, New Hampshire is an interesting field for the study of the phenomena of the Drift Period. Our limits will not allow more than brief allusions.

The entire state must have been covered with moving ice in the glacial period. Several prominent courses of the current seem to have been the following. The course of the ice over all the northern and most of the higher mountains has been to the southeast. The highest striæ observed are near the Lake of the Clouds, Mt. Washington, 5,200 feet; while small transported pebbles have been seen at the height of 5,800 feet. Hence the ice probably moved over every peak except Washington. Along the Merrimack basin the current passed southerly. There is an interesting deviation from this rule in Baker's river valley. This stream at first runs southerly and then turns to the east. The markings on the ledges indicate a similar curve in the course of the ice. But the ice did not continue to bend with the Pemigewasset valley below Plymouth. Instead the drift current continued easterly across to Sandwich over Squam Lake. The ice moved over Winnipiseogee Lake about S 25° E, and turned sharply to the east at the south end of Ossipee mountain, as if it had been restrained within the Lake valley by the rocky barriers on the east.

Along the Connecticut valley the course was a little west of south agreeing with the direction of the valley. The water-shed between the Connecticut and Merrimack rivers is often marked by the southeast striæ. A notable example is Monadnock, which bore the brunt of two currents, the one from the north and the other from the north-west.

TERRACE PERIOD.—Few rivers display better the phenomena of terraces than the Connecticut and Merrimack. I will present a few statements respecting the connection between the latter and the physical features of Winnipiseogee Lake. The following are the heights above the outlet of the lowest point in the rim of the basin, running entirely around.

	Feet.
Ashland ridge,	153
Centre Harbor ridge to Squam,	160
Squam Lake by Long Pond,	40
Ridge to Saco waters,	219
Ridge to Cochecho River,	72
Old outlet in Gilford,	80

Hence a rise of the Winnipiseogee Lake forty feet would cause a flow into Squam Lake; a rise of eighty feet would allow water to flow both into the Cochecho and what appears to be an old outlet through Gilford, towards Lake Village. A rise of one hundred and fifty-three feet would be required to make a direct connection with the Pemigewasset valley, the route via Squam Lake being very tortuous.

The existing outlet is an interesting stream. It expands immediately after leaving the lake into Long Pond, being navigable for steam tugs, through the passage way. The dam of the Lake Company at Lake Village prevents farther navigation, but in a mile or two it expands and sends off two bays, called Winnisquam Lake and Round Bay. There are two more expansions in Belmont, Tilton and Northfield, called Sanbornton and Little Bays. The water then descends rapidly to the Pemigewasset at Franklin, the two streams combined becoming the Merrimack. The total descent of the outlet for its fourteen miles' course is two hundred and thirty-two feet. It flows almost entirely over the hard pan or glacier drift deposits, and seems to have made no terraces above fifteen or twenty feet in altitude. No others exist above the west corner of Belmont, and those seem to have been formed in connection with the Pemigewasset.

The striking feature of this lake border is the absence of terraces. The banks are chiefly of glacial drift. The few terraces that may be seen are of limited size. The following are the principal ones.

At Alton Bay two,	55 and 75 feet.
West Alton, two places,	75 and 100 feet.
Several places in Gilford	10, 31, 47, and 80 feet.
Plain of Laconia, perhaps,	10 to 12 feet.
Meredith Village,	5, 15, 23 and 30 feet.
Moultonboro,	75 feet.
Wolfsboro,	25 feet and more.
Centre Harbor Village,	8 to 10 feet.

There are no evidences to show a submergence of the lake area by the ocean, unless it be derived from the existence of fresh-water smelts, apparently of the same species with their compeers of the salt water. No attempt has yet been made to find any marine animale in this large body of water by dredging. The terraces seem to indicate several former levels of the lake. Assuming this to be true, we can believe that Lake Winnipiseogee stood successively 100, 80, 55, 30, 20, 15 and 12 feet above its present level, but never any higher, or at least not long enough to allow sand to collect around the shores. Some of these terraces may be higher back among the Belknap Mountains, but it is only the height of this river terrace at its junction with the lake that indicates the former altitude of the water level.

With the elevation of the water one hundred feet the river at the Alton outlet must have been eighteen feet higher than now, so as to prevent the egress of water. The present outlet may have been entirely closed. This we can easily appreciate, since the drift ridge has evidently been excavated by running water more than this amount, as is indicated by the steepness of the present banks. There may also have been a barrier in Gilford to the south of the present outlet. Granting the existence of barriers in those directions, the outlet must have been through Squam Lake. Possibly there may have been a barrier across the Squam River also, where the valley is narrow, though all loose material is now removed from it. If so the outlet probably ran through Gilford.

There is nothing to indicate the nature of these barriers other than has been specified. Considering the character of the period, it is likely that there was earth in Alton and ice in the Gilford and Squam rivers. When the barriers had sunk twenty feet more, egress would have been checked only in Gilford. We may suppose at this epoch that the principal outlet lay to the south to the Cochecho River. As the lake sank more and more there might have been terraces formed locally at various levels, as our figures seem to indicate. But the level must have sunk to less than forty feet before Squam Lake could have existed separate from Winnipiseogee, and the outlet ran through its present channel. If the drift ridge at the Weirs gradually sunk by erosion, we can understand how the several local terraces mentioned above have been formed. Should there be another falling of the level a new set of terraces would appear, just beneath the present shore line.

The theory formerly prevalent respecting the origin of terraces supposes that the ocean was present to allow the gradual accumulation of sand and gravel beneath its retiring waves. The chief objection to this view, is that if terraces were made all the way up to one hundred feet there is no reason why others should not exist at twice and thrice that elevation. It is the absence of these higher terraces that led me to examine the surface geology of this region and to speculate whether this fact would not lead to the abandonment of the oceanic theory.

The true theory seems to be developed by studying the condition of the neighboring valley of the Pemigewasset and its connection with Winnipiseogee; for we have already seen that forty feet rise in the latter would carry its waters into the former valley via Squam Lake and river.

The Pemigewasset and Merrimack rivers make an inclined plane from the height of

about five hundred feet (the same with the lake) at Plymouth to the ocean. The highest banks of sand of apparently fluviatile origin connected with the stream are the following. In most cases the measurements have been made with an aneroid barometer and may be regarded as approximations only to the truth.

HEIGHTS OF TERRACES	ABOVE		
	RIVER.	LAKE W.	OCEAN.
Plymouth	134	121	622
Ashland	?154	121	623
New Hampton	?260	311	812
N. Sanbornton	400	292	751
Franklin	202	30 below	470
Concord	125	150 below	350
Manchester	60 to 110 (falls)	250 below	250
Lawrence			40
Connected with these are a few others of interest.			
Holderness (tributary)	134	322	823
Principal terrace east of Plymouth	134	61	562
Height of rim between Squam and Winnip'gee		40	541
Water-shed in Ashland	?186	153	654
Terraces in Belmont	170	150	650

Perhaps the following generalizations may be drawn from these figures.

1. The highest level of sand or terrace descends rapidly from Plymouth to the ocean and more rapidly than the river itself.

2. The terraces near the ocean are not so much elevated above the river as those higher up the stream.

3. There is higher sand in New Hampton than in Plymouth and Holderness, farther north; nevertheless a tributary in Holderness holds about the same height, but this of itself does not necessarily prove the presence of the Pemigewasset water at this level. The sand is also greater in amount as well as height. It will be also noticed that the New Hampton sand is one hundred and fifty-eight feet higher than the Ashland water-shed leading to the lake, while the Ashland sand is thirty-two feet lower than this ridge. Why then should the sand have accumulated in New Hampton higher than this water-shed.? We should naturally expect the stream to have gone over to the lake and carried the sand with it.

It seems clear that water must have gone to the lake through this Ashland-Meredith valley, for that is the direct course of the stream from north to south, and it may be that it carried sand also, since the terrace does not rise so high at Ashland as below. There is no detritus upon the lower side of the water-shed. The valley is entirely devoid of all loose materials.

Water at the height of eight hundred and twelve feet would also flow into Winnipiseogee through Squam, but would carry no material with it, as the course is tortuous and northeasterly.

Inspection of a map will show a great bend in the Pemigewasset just below Ashland. This may explain the unusual accumulation of sand in New Hampton; for when a river passes around a bend there is always a deposition of sediment held in suspension. With a powerful stream filling the valley, coming down from the north, there would be an immense amount of sand which would be checked by this point of land and deposited. The most noticeable mass of sand in New Hampton is arranged much like a terminal moraine just as might be expected upon this view.

4. The terraces upon Winnipiseogee river are quite different from any upon the Pemigewasset. Above Belmont they do not exceed fifteen feet in height. On the Mill Stream in the west corner of Belmont the terraces are six hundred and fifty feet above the ocean and one hundred and seventy above the river and they are continuous hence on either side to the Merrimac valley, while the river almost uniformly flows over hard pan.

These facts afford the inference that these high terrraces in Belmont, Northfield and Sanbornton, were made by the Pemigewasset back water and not by the Winnipiseogee. It would result from this view that the outlet of the lake lay in some other direction at the time of the formation of these higher terraces and that a barrier kept back the river water from commingling with the lake. The terraces agree nearly in height with the Ashland-Meredith water-shed. If we suppose the waters of the Pemigewasset poured freely into the Winnipiseogee basin through the Squam, Ashland and the outlet avenues, at the height of one hundred and fifty or one hundred and seventy-five feet, we can understand why the main stream still went down the Merrimac, as the land descended more rapidly in that direction.

We conclude that the outlet made only small terraces, while the upper sands must be referred to the high water of the Pemigewasset. The connections through the several avenues would not be such as to carry detritus to the still water of the lake.

5. In general, therefore, without pointing out further details, we may refer the origin of the Merrimac terraces to the action of the river alone without the necessary presence of the ocean.

THE RIVER SYSTEMS.

BY WARREN UPHAM.

THE consideration of the hydrographic features of New-Hampshire is of especial interest, as exhibiting the extent and value of its water-power. The river systems are not more important as a part of the physical geography than they have already become in their relation to tho industries aad wealth of tho State. Lakes and streams are aleo among the most attractive elements of our scenery, their graceful heauty heing increased hy contrast with the grandeur of forest-clad hills and rock-hrowed mountains.

New Hampshire is divided into five hydrographic districts, which are drained hy the Connecticut, Merrimack, Androscoggin, Saco and Piscataqua rivers. None of these river systems is wholly comprised within the limits of the State.

CONNECTICUT RIVER SYSTEM.

The hasin of the Couaecticut includes ahout 3,060 squaro miles in New Hampshire, or somewhat more than three tenths of the area of the State. The line of low water on the west side of this river forms the houndary between this state and Vermont; and Hall's stream, tbe tbird considerable trihutary from the right helow its source, coatinues this houndary hetween our state and the province of Quehec. In addition to this area drained from New-Hampshire, the Connecticut hasin emhracas ahout 3,750 square miles in Vermont, or four tenths of tbat state, making a total of more than 6,800 square miles in hoth states, nearly all of which contributes to the water-power of this river along our western border.

The general course of the head stream of the Connecticut river, passing througb Second and Connecticut lakes to the moutb of Hall's stream, is S. 60° W.,* being a distance of twenty-five miles from its farthest sources in a direct line, and of twenty-eight miles from Third lake, following the course of the river. The descent along this distance is comparatively rapid, with few and narrow intervals. The surface of the country is moderately hilly hut not rugged, and more than nine-tenths is still covered with tbe original forest.

From the mouth of Hall's stream to the head of Fifteen-miles falls in Dalton, the general course is S. 13° W., a distance of forty-two miles in a direct line, or forty-six miles, if we follow the principal hends in the river. Along this whole distance are the fertile intervals of the upper Connecticut valley, varying from one half mile to a mile in width. The surface hack from the immediate river valley rises in bold bills or mountains.

From the head of Fifteen-miles falls, near the mouth of Johu's river, to the moutb of the Passumpsic, the course of the Coanccticut is S. 70° W., heiug a distance of eigbteen miles in a direct line, or about twenty, following the stream. Opposite to this portion of the river, on tbe east and southeast, is the elevated mountain region of the state. Here the descent is rapid, and the surface more broken than in any other part of the course of this river. Its direction is also heat to tbe west along this distance, heyond which the general course of the upper is again followed in the lower valley, with hut slight deviation, almost to the Massachusetts line.

Tbis course from the mouth of the Passumpsic to Brattlehorough is S. 16° W., a distance of 103 miles in a straight line, or 107 hy the course of the river. Along this distance the river intervals and terraces of the valley usually extead from one half to a mile and a half in width, but are occasionally iaterrupted on one or both sides by encroaching ranges of bills. Tbe water-shed whicb separates this portion of the Connecticut hasin from that of tbe Merrimack, every where reaches a high elevation, and frequently is marked hy mountains.

South from Brattleborough the Connecticut, for tbe remaining ten miles in New Hampshire, bas a general direction S. 25° E,, again resuming nearly its former course after crossing the Massachusetts line.

Tbe entire length of tbe Connecticut from Third lake, following its principal hends along our western horder to tbe Massachuectts line, is 211 miles. Its drainage area in New-Hampshire is of comparatively uniform widtb, the water-shed averaging about sixteen miles distant from the river. Tbe point of least width is in the north part of Orford, where it is contracted te five miles. The farthest part drained hy this river system from New-Hampshire is ia New Ipswich, thirty miles from the Connecticut at its nearest point. Tbe length of this hasin in New Hampsbire, in a direct line, is 185 miles.

MERRIMACK RIVER SYSTEM.

The Merrimack river receives tbis name south from Franklia, wbere the Pemigewasset and Winnipiseogee rivers unite. Its area of drainage in New-Hampsbire is about 3,825 square miles, or four tentbs of the state. This river system comprises the central portion of New-Hampshire, including our principal lake region, and has its source in the centre of the White Mountains. Our largest cities have grown up along the Merrimack, and its aame has become associated, like those of Winnipiseogee lake and Mt. Wasbiugton, with all descriptions of the Granite State.

From its source in Franconia to the Maseachusetts line, its general directiou is S. 8° E., heing 100 miles in a direct course, or 105 miles following the principal hends in the river. The first thirty-eight miles of this distance is nearly S. 5° E.; it then heads nearly west four miles to Bristol village, and this is the only considerable deviation from its general course. From this point to the mouth of the Suncook river, a distance of thirty-three miles, it runs nearly S. 20° E.; thence a distance of thirty miles its course is about S. 2° E., to tbe Massachusetts line. After passing heyond the limits of the state, the Merrimack bends to the nortb-east, the boundary line south of Rockingham county being parallel with its course aad three miles distant. Its total length is about 144 miles.

The upper part of the Pemigewasset valley is narrow, and closely bordered on both sides by mountain ranges. Tbe intervals begin in Thornton and Campton. The high

* All courses here given are referred to the true meridian.

sandy plains, which are characteristic of this valley southward, commence at New-Hampton. The alluvial area along this river is wider than on the Connecticut, and the hills rise less abruptly upon either side.

The width of the Merrimack basin at its source, measured from Mt. Willey to Cannon or Profile mountain, is about fifteen miles. This increases to the section from Brookfield across Winnipiseogee lake to Orange, which is forty-three miles. Thence southward to Manchester it remains very nearly the same. From near Manchester this area widens on the east, bending in the direction of the river's mouth at Newburyport. Its greatest width in New-Hampshire, from the west line of Seabrook to Monadnock mountain, is sixty miles. Its length, from Profile lake south to the Massachusetts line, is ninety-eight miles.

WINNIPISEOGEE LAKE.—The hydrographic basin of Winnipiseogee lake comprises about 350 square miles. Its farthest points are nowhere more than seven miles distant from the lake. The height of the divide separating it from the Cocheco valley is only seventy-two feet at the lowest place.

The lake is quite irregular in form. Its general course is S. 25° E., with several long bays or arms. On the south is Alton bay, eight or ten miles long. On the south-east is Wolfeborough bay, in close connection with Smith's pond. On the north-east are two branches into Moultonborough. On the north-west is the expanse known as Meredith bay. The western shore is comparatively straight from Meredith Village to Alton Bay village. The hills about the lake are steeper than the average in other parts of the state.

The length of the lake proper is 19 miles. The breadth of the widest part is 8½ miles. Its area excluding islands as given on the Lake Company's map, is 69.8 square miles. If Long Bay, which is properly an expansion of the outlet, be added, the area becomes 71.8 square miles. The number of islands large and small together, according to the same authority, is two hundred and seventy-four. Of these ten have areas exceeding one hundred acres. By the dam at the outlet of this lake a depth of six feet is made availble for the use of manufacturing companies in the dry season. The top of this dam is 502 feet above mean tide.

ANDROSCOGGIN RIVER SYSTEM.

The area drained by the Androscoggin river in New Hampshire is about 775 square miles, or one twelfth of the state. About 900 square miles from Maine are also drained by this river through New-Hampshire.

The course of the Androscoggin from Umbagog lake is first a little south of west about five miles to the mouth of Clear stream, from which its general course is S. 5° W. to the mouth of Moose river at Gorham, a distance of thirty-three miles, following the bends of the river. Along this portion of its course the Androscoggin flows almost directly towards the highest and most massive range of the White Mountains, approaching within ten miles of the summit of Mt. Washington. At Gorham this barrier turns the river sharply to the east, a distance of nine miles carrying it into the state of Maine.

The length of the Magalloway river, from its source in Pittsburg, near the most northern point of New Hampshire, to its mouth about one mile below Umbagog lake, is thirty-three miles in a direct line, or thirty-nine miles, following the principal bends in the stream. A large portion of this river is nearly level and very meandering, although its general course is nearly straight. The total length of river from Magalloway lake, the source of this stream, to the point where the Androscoggin enters Maine, is eighty-five miles.

The most distant point in Maine drained by the Range of Lakes is about forty miles in a direct line from the junction of these waters with the Magalloway. The combined area of these lakes is stated by Wells, in his *Water Power of Maine*, to be seventy-seven square miles, upon which an average storage of twelve feet is held to provide a sufficient supply of water for the last part of the log-driving season.

Our eastern boundary runs across Umbagog lake, dividing it in nearly equal portions to the two states. The length of this lake is about eleven miles, the north portion being bent east into Maine. By the dam in Errol, four miles below its mouth, the outlet is made navigable for a steamboat to that point, and the waters of the Magalloway are made to contribute to the reservoir storage of the lake.

Almost the entire area drained by the Range of Lakes and the Magalloway is unbroken forest, which also covers nine tenths of this basin southward in New-Hampshire. By reference to the map, it will be seen that Coös County, north from Mt. Washington, is nearly equally divided between the Connecticut and Androscoggin basins. The latter, as far as included in New Hampshire, averages about eleven miles in width, being sixteen miles wide at its southern end, and fifteen at the sources of the Swift Diamond river, while it is narrowed to almost nothing at Mt. Carmel. The length of this hydrographic district, measured on the eastern boundary of the state, is seventy one miles.

SACO RIVER SYSTEM.

The area drained by this system in New Hampshire is about eight hundred and fifty square miles, or one eleventh of the state.

The distance in a straight line from the head of the Saco beyond the White Mountain notch to its point of crossing the Maine line is about twenty-five miles, the direction being nearly south-east. Following the course of the river, this distance is about thirty-four miles. The first eleven miles it runs a little east of south, with high mountains bending in steep and gracefully curved slopes to form its valley. The next nine miles extend nearly east, through the level intervals of Bartlett to the mouths of Ellis river and East Branch. The river then turns nearly south eight miles to the mouth of Swift river in Conway, from which point it flows east six miles to Maine line.

The southern portion of this basin in New-Hampshire is drained by the Ossipee river, which passes into Maine. A large part of this area about Ossipee lake is comparatively level, consiting of sandy plains. Nearly the whole of Carroll county is comprised within the Saco basin, which has in New-Hampshire an average width of about eighteen miles, and a length, measured on our eastern boundary, of forty-six miles.

PISCATAQUA RIVER SYSTEM.

The Piscataqua river is formed by the union of the Cocheco and Salmon Falls rivers at Dover. The second, in its whole length, with the Piscataqua, constitutes a part of our eastern state boundary. The area of this basin in New-Hampshire,—those towns on the coast which drain directly into the ocean being also included in this measurement,—is about eight hundred and twenty-five square miles, or nearly one eleventh of the state.

From East pond, the source of Salmon Falls river, to the mouth of the Piscataqua is nearly thirty-eight miles in a straight line, the course being S. 20° E. By the course of the river this distance is thirty-nine miles, the length of Salmon Falls river being twenty-eight miles, and of the Piscataqua, from the junction of this river with the Cocheco, eleven miles. The course of Salmon Falls river in the first twelve miles is nearly south. The next thirteen miles to Salmon Falls is nearly south-east; thence the course is south seven miles to the mouth of Great Bay, thence south-east about seven miles to the ocean, three miles below Portsmouth.

This river is affected by tide to Dover and South Berwick. Between the township of Durham and those of Greenland and Newington is a wide tidal basin, which receives the waters of several rivers. Upon Exeter or Squamscot river, the largest of these, tide extends to the village of Exeter. The area of this estuary, south-west from Dover point, including Little and Great bays, is about nine square miles. From Dover point to Portsmouth the Piscataqua is about half a mile wide. Below this city it contains numerous islands, the largest of which constitutes the township of New Castle.

This basin includes in New-Hampshire nearly all of Strafford and half of Rockingham counties, averaging about eighteen miles in width, and forty-five miles in length, measured from Wakefield to East Kingston. From the sources of Lamprey river to the mouth of the Piscataqua is thirty miles, from which point the width of this district diminishes northward, being ten miles at Farmington.

In the following Tables are given altitudes along these rivers at various points, with their principal branches in New Hampshire, arranged in order from the source, their lengths, and the areas and altitudes of lakes and ponds connected, being stated approximately.

TABLE OF HEIGHTS AND OF TRIBUTARIES OF CONNECTICUT RIVER.

	Distance from Third lake.	Height above sea.
Third lake, ¼ square mile in area,		2,038 feet.
Second lake, 1¼ square miles in area,	5 miles.	1,882 "
Connecticut lake, 3 square miles in area,	10 "	1,618 "
At West Stewartstown,	30 "	1,085 "
North Stratford,	49 "	865 "
Head of Fifteen-miles falls,	74 "	830 "
Lower Waterford,	80 "	613 "
Foot of McIndoe's Falls,	98 "	432 "
Wells River,	105 "	407 "
Orford,	123 "	380 "
Ledyard bridge, Hanover,	137 "	675 "
White River Junction,	141 "	339 "
Windsor,	155 "	304 "
Beaver Meadow, Charlestown,	169 "	289 "
Head of Bellows falls,	181 "	283 "
Foot of Bellows falls	181½ "	234 "
Westmoreland,	191 "	219 "
Mouth of Ashuelot river,	208 "	206 "

TRIBUTARIES.	Course.	Length in miles.	LAKES AND PONDS.	Area in square miles.	Altitude in feet above the sea.
ON WEST SIDE.			[NOTE. See Connecticut and upper lakes in table of Heights preceding.		
Perry stream, Pittsburg,	S. S. W.	12			
Indian stream, Pittsburg,	S. S. W.	15			
Hall's stream, Pittsburg,	S. S. W.	16			
ON EAST SIDE.					
Mohawk river, Colebrook,	W.	10			
Upper Ammonoosuc, Northumberland,	N. & W.	28	Trio ponds, Odell,	0.4	1960
			Pond of Safety, Randolph,	0.1	1975
			Head pond, Berlin,	0.4	1075
			Percy pond, Stark,	0.5	1040
			Potter's pond, Stark,	0.5	1025
Israel's river, Lancaster,	N. W.	15			
John's river, Dalton,	N. W.	12	Cherry pond, Jefferson,	0.6	1200
			Island pond, Whitefield,	0.25	1050
			Long pond, Whitefield,	0.25	1000
Lower Ammonoosuc, Bath; fall from Fabyan House, 1150 ft.	W. & S.W.	38	Lake of the Clouds, Mt. Washington,		5000
			Echo Lake, Franconia,	0.1	1925
Mascomy river, Lebanon,	S. & W.	23	Norris pond, Dorchester,	0.0	1500
			Hart's pond, Canaan,	0.75	1050
			Crystal lake, Enfield,	0.6	900
			Mascomy lake, Enfield,	1.5	750
Sugar river, Claremont; fall 810 ft.	W.	17	Sunapee lake,	9.5	1090-1103
Cold river, Walpole,	S. W.	17	Cold pond, Acworth,	0.3	1100
			Warren pond, Alstead,	0.4	1150
Partridge brook, Westmoreland,	N. W.	6	Spafford lake, Chesterfield,	1.0	740
Ashuelot river, Hinsdale,	S. W.	40	Ashuelot pond, Washington,	0.4	1300
			Munsonville pond, Nelson,	0.4	1350
			Breed pond, Nelson,	0.6	1250
			Woodward pond, Roxbury,	0.3	1300
			Swanzey pond, Swanzey,	0.2	550

TABLE OF HEIGHTS AND OF TRIBUTARIES OF MERRIMACK RIVER.

	Distance from Profile lake.	Height above sea
Profile lake, Franconia,		1,050 feet.
Pemigewasset river, at mouth of East Branch,	0 miles	800 "
Pemigewasset river at Plymouth,	27 "	455 "
Winnipiseogee lake, 71.8 square miles,		496–502 "
Merrimack river at Franklin,	52 "	265 "
Merrimack river at Concord,	69 "	225 "
Amoskeag dam, Manchester,	85 "	179 "
At foot of Amoskeag falls,	86 "	122 "
At mouth of Nashua river,	101 "	93 "
Dam at Pawtucket falls, Lowell, †	112 "	87 "
Essex Company's dam, Lawrence, †	122 "	39 "

† Furnished by J. B. Francis, Lowell.

TRIBUTARIES.	Course.	Length in miles.	LAKES AND PONDS.	Area in square miles.	Altitude in feet above sea.
ON WEST SIDE.					
Baker's river, Plymouth,	S. E.	23	Upper Baker pond, Orford,	0.25	1000
			Lower Baker pond, Wentw'th	0.3	975
			Stinson pond, Rumney,	0.5	990
Newfound river, Bristol; fall, 238 ft.	S.	2	Newfound lake,	6.8	600
Smith's river, Bristol,	E.	15			
Contoocook river, Fisherville,	N. E.	45	Pleasant pond, New London,	1.0	975
			Todd pond, Newbury,	0.3	677
			Bradford pond, Bradford,	0.8	665
			Island pond, Stoddard,	0.5	1248
			Stacy pond, Stoddard,	0.7	1850
			North pond, Harrisville,	0.25	1318
			Harrisville pond,	0.2	1634
			Long p'd, Nelson & Hancock	1.2	1440
Piscataqnog river, Manchester,	E.	20	Gregg's pond, Deering,	0.4	850
Souhegan river, Merrimack,	N. E. & E.	25	Baboosic pond, Amherst,	0.5	300
Nashua river, Nashua,	E. & N. E.	35			
ON EAST SIDE.					
East Branch, Woodstock,	W.	14			
Mad river, Campton,	S. W.	15	Greeley pond, Elkins grant,	0.05	1815
Squam river, Ashland; fall, 110 ft.	S. W.	3	Squam lake,	11.0	510
			Little Squam lake,	0.95	510
Winnipiseogee river, Franklin,	S. W.	19	Winnipiseogee lake,	71.8	496-502
			Merrymeeting l. N. Durham,	3.7	590
			Smith's pond, Wolfeborough,	4.5	525
			Red Hill pond, Sandwich,	0.5	590
			Long pond, Center Harbor,	0.6	505
			Wakawan lake, Meredith,	1.0	540
			Wickwas pond, Meredith,	0.45	520
			Round bay, Laconia,	0.5	485
			Great and Sanbornton bays,	6.8	475
Soucook river, Pembroke,	S.	18	[illegible]cky pond, Gilmanton,	0.3	600
Suncook river, Allenstown,	S. S. W.	27	Young's pond, Gilmanton,	0.4	750
			Lougee pond, Gilmanton,	0.6	622
			Suncook pond, Barnstead,	1.2	550
			Little Suncook p. Northwood,	1.0	512
			Pleasant pond, Deerfield,	0.9	520
Cohas brook, Manchester,	S. W.	4	Massabesic lake, Auburn and Manchester,	3.75	256
Beaver brook, Dracut, Mass.,	S.	18	Beaver pond, Derry,	0.3	300
			Corbett's pond, Windham,	0.0	200
Spicket river, Lawrence, Mass.,	S.	13	Island pond, Hampstead,	0.75	210
			Policy pond, Salem,	0.6	175
Powwow river, Amesbury, Mass.	E. & S. E.	15	Country pond, Kingston,	0.75	110
			Great pond, Kingston,	0.33	100

The Contoocook river of this system is the largest trihutary river of New Hampshire. Its area of drainage on the south-east is nnrrow. From the north-west it receives Blackwater and Warner rivers in Hopkinton, North Branch near the north line of Antrim, and Nuhanusit river at Peterhorough.

TABLE OF HEIGHTS AND OF TRIBUTARIES OF ANDROSCOOGIN RIVER.

	Distance from Magalloway lake.	Height above sea.
Magalloway lake		2,225 feet.
Parmachena lake, on Magalloway river, 3 square miles,	13 miles.	1,600
Umbagog lake, 18 square miles,	39 "	1,250 "
Remainder of Range of Lakes,	"	1,456-1,511 "
At head of Berlin falls,	70 "	1,048 "
At Maine line,	85 "	690 "

TRIBUTARIES.	Course.	Length in miles.	LAKES AND PONDS.	Area in square miles.	Altitude in feet above sea.
ON WEST SIDE.					
Swift Diamond river, College grant (tributary to the Magalloway,)	S. E. & E.	15	Diamond pond, Stewartstown,	0.4	1700
Clear stream, Errol,	S. E.	10	Millsfield pond, Millsfield,	0.4	1550
			Aker's pond Errol,	0.5	1300
Moose river, Gorham,	E.	8			
Peabody river, Gorham,	N. E.	9			
ON EAST SIDE.					
Chickwalnipy river, Milan,	W.		Success pond, Success,	1.0	1850

TABLE OF HEIGHTS AND OF TRIBUTARIES OF SACO RIVER.

	Distance from source.	Height above sea
Pond at source, near gate of White Mountain Notch,		1,880 feet.
At Willey house,	2.6 miles.	1,300 "
Mt. Crawford house,	8.5 "	975 "
Line between Hart's location and Bartlett,	12.5 "	745 "
Mouth of Rocky Branch,	18 "	560 "
Mouth of Ellis river,	20 "	511 "
Portsmouth, Great Falls & Conway Railroad crossing,	25 "	446 "
Portland & Ogdensburg R. R. crossing, Conway Centre,	30 "	412 "
Ossipee lake, 7 square miles,		408 "

TRIBUTARIES.	Course.	Length in miles.	LAKES AND PONDS.	Area in square miles.	Altitude in feet above sea.
ON EAST SIDE.					
Mt. Washington river, Hart's Location,	S. S. W.	7			
Ellis river, Bartlett,	S. S. E.	12			
East Branch, Bartlett,	S. S. W.	12	Mountain pond, Chatham,	0.05	1300
ON WEST SIDE.					
Swift river, Conway,	E.	15			
Ossipee river Cornish, Me.,	E.	15	Ossipee lake,	7.0	408
			Six-mile pond, Madison,	2.5	456
			Chocorua lake, Tamworth,	0.4	550
			Bear Camp pond Sandwich,	0.4	600
			Dan Hole pond Tuftonboro,	0.05	775
			Pine river pond, Wakefield,	0.7	650
			Province pond, Effingham,	1.8	525

The length of Ossipee river is given from Iron Works falls at the mouth of Ossipee lake. The Bear Camp and Pine rivers, outlets of ponds hearing the same names, are the principal tributaries to this lake. From Iron Works falls to the source of Bear Camp river is twenty miles.

TABLE OF HEIGHTS AND OF TRIBUTARIES OF PISCATAQUA RIVER.

	Distance from East pond.	Height above sea.
East pond, Wakefield, 2.9 square miles (Wells) . . .		499 feet.
Horn pond, " 0.4 " " " . . .	1 mile.	479 "
Three ponds, Milton, 1.4 " " . . .	9 miles,	409 "
Great Falls, top of dam, ...	22 "	166 "
Bow lake, Strafford, 1.5 " " . . .		515 "

TRIBUTARIES.	Course.	Length in miles.	LAKES AND PONDS.	Area in square miles.	Altitude in feet above sea.
TO SALMON FALLS RIVER.					
Branch river, Milton,	S. E.	19	Cook's pond, Brookfield, Lovell's pond, Wakefield,	0.4 1.0	530 550
Cocheco river, Dover,	S. E.	25	Reservoir, Middleton, Bow lake, Strafford, Ayer's pond, Barrington,	0.9 1.5 0.6	600 515 250
TO LITTLE AND GREAT BAYS.					
Bellamy river, Dover,	E. S. E.	13			
Oyster river, Durham,	E.	10	Wheelwright pond, Lee,	0.3	131
Lamprey river, Newmarket,	E.	20	Pawtuccaway p. Nottingham, Mendam's pond, Barrington, Jones pond, Raymond,	2.0 0.4 0.25	225 275 258
Exeter river, S. Newmarket,	E. N. E.	22	Phillips pond, Sandown,	0.25	215

Heights along the principal water-shed of New Hampshire, which bounds the Connecticut hasin on the east, are elsewhere given with the description of the topographical features of the state.

The rivers of New Hampshire are hroken along their whole course hy falls or rapids separated from each other hy intervals of a few miles each, many of which afford sites for manufacturing towns as favorahle as any already occupied. The existence of the cities of Manchester and Nashua must he refered mainly to this cause, and many rapidly growing villages have sprung up to utilize the waiting labor of our streams. Comparatively a small part, however, of our water-power is yet employed.

The numerous lakes and ponds of the state perform a very important service, as natural reservoirs for retaining water in the season of excess against the season of dearth. The supply which they are capable of furnishing is of equal henefit to all the water-powers situated helow them on their pathway to the sea. This enables a large number of interested companies to enter into combination for the improvement of these natural storage hasins, most of which are so situated that the lowering of their outlets, or the erection of dams at a comparatively small outlay, secures several feet of water upon their surface for use in a drouth. The greater cheapnesa of water-power, as compared with steam power, is thus combined with equal permanence and reliability for all seasons of the year.

TO ILLUSTRATE CLIMATOLOGY, [see page 25.]

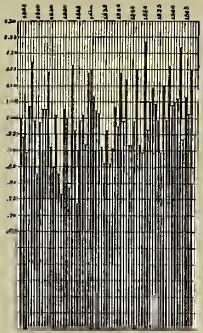


DIAGRAM I.
Fluctuations in Annual Rainfall on the Atlantic Sea-coast, Maine to Maryland; from Smithsonian Rain Table, by C. A. Schott.

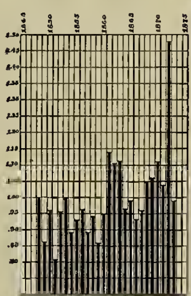


DIAGRAM II.
Fluctuations in Annual Rainfall of the Upper Connecticut Valley; from Observations by H. A. Cutting, M.D., Lunenburg, Vt.

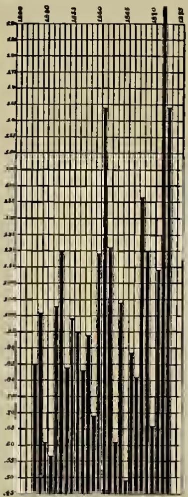


DIAGRAM III.
Fluctuations in Annual Rainfall of the Upper Connecticut Valley; from Observations by H. A. Cutting, M.D., Lunenburg, Vt.

DIAGRAM IV.
Fluctuations in Annual Rainfall at Lake Village; from Observations by the Winnipiseogee Lake Company.

CLIMATOLOGY OF NEW HAMPSHIRE.

BY J. H. HUNTINGTON.

ON account of our high latitude and sea border, our lofty mountains and narrow valleys, for our limited area the climate is exceedingly varied. On the coast, the cold of winter and the heat of summer are moderated by the breezes of the ocean. Inland, for a very few days in summer, we have more than the heat of the tropics; while on our highest mountain summits in winter, we have the climate of Greenland,—if anything, more intense, on account of the fierce winds. In the southern portion of the state we have the birds and the trees, and we raise the grain and the fruits common in the Northern states, while on the slopes of the mountains and on the highlands in the vicinity of Connecticut lake, we have the trees and the birds, and raise only the grain and the fruits of the far north.

Notwithstanding our extremes of temperature, we have a climate far more healthful than that of most of the states east of the Rocky mountains. The extreme heat of summer is of so short a duration that it does not produce the enervating effect of long continued heat, though of a considerably lower temperature. The bracing air of winter, and the charm of our autumn months, largely compensate for the few extremes of summer and of winter. The lassitude produced by months of heat in southern latitudes, and the extremes of cold, accompanied by fierce winds that descend with such fell swoop in the west, are both unknown; for with us winds of great velocity, accompanied by intense cold, except on the summits of our mountains, are extremely rare.

EFFECT OF FORESTS.

How far the removal or the renewal of forests affects our climate is something in which every one is interested. From the data that we have, it may be impossible to generalize to any great extent; yet there are some things that we can learn from the observations that have been made. While it is stoutly contended that there has been no decrease in the annual amount of rain-fall in the eastern part of the United States, there are facts that show that forests have a great influence on the climate,—if not on the annual rain-fall, yet on its distribution during the months of the year and the hours of the day.

In the central and southern portion of New Hampshire, the hay crop is frequently cut short by drouth, while in the northern portion of the state, often the same year, the hay crop is above the average; yet the annual rain-fall is less in the northern than either in the central or southern part of the state. But in the north there are abundant forests; and the rain is distributed through the months when it is needed for the crops to grow and mature.

The preservation of the vegetation on our mountains is of great importance, not only in modifying the distribution of rain, but also in moderating the extremes of cold in winter.

Our mountains, especially the higher summits, except where it has been destroyed by fire, are covered to a considerable depth by peat formed chiefly from moss and lichens. Now it has been found by experiment "that peat moss can absorb more than twice its own weight of water, dry clay nearly its own weight, dry earth, or garden mould, more than half its own weight, and dry sand a little more than a third of its own weight. With equal times of drying, under the same circumstances, peat moss lost two thirds of all the water it contained, clay and earth more than three fourths, and sand more than nine tenths." Farmers can determine the capacity that different soils have for retaining moisture, by taking two boxes, filling each with a different kind of soil, and pouring an equal quantity of water on each, and then suspending each of the boxes at the end of a balance, so adjusted that the bar shall be horizontal. Then, if the soils are unequal in their capacity for retaining moisture, one box will soon rise above the level of the other. This experiment was first performed by D. Milne Horne. When a mountain has been denuded of its forests and vegetable mould, the rain that falls upon it flows immediately into the streams, and is carried to the ocean; then, before another rain, the streams are dried up, the rivers are greatly contracted, and the next rain causes a freshet;—so we have a succession of drouths and floods. On the other hand, vegetable mould retains the moisture, and it is gradually evaporated, a high relative humidity is maintained, springs gush forth from the slopes of the mountains, the streams are full, but not to overflowing, and a slight change in the temperature causes rain to fall in gentle showers.

There is one marked feature in regard to the mountains in New Hampshire that have been burned, namely, the fact that the fire has, in general, spread only over their eastern slopes, and when it has reached the summits it has extended but a short distance down the western slopes, showing that the moisture-bearing currents of wind come from the south-west. Although it is of great importance that the mountains should be covered with vegetation, yet it is of no less importance that there should be a certain amount of forest over the entire country, and this amount should be at least thirty per cent. of the whole area. In some parts of the state the area covered by forests is much less. The general effect of forests on temperature is to make the nights warmer and the days cooler, and to moderate the extreme heat of summer, making it less intense, and the cold of winter less severe. In New Hampshire, during the winter, in calm, clear weather, the cold is more intense, or, at least, the thermometer goes lower in the valleys than on moderate elevations, or even on the summit of Mt. Washington. As the stratum of air in contact with the earth often becomes colder by contact, and as the cold air is heavier than the warmer currents, the cold air flows down the valleys like streams of water. Hence in the Connecticut and Merrimack valleys, where these currents converge and become united, the cold is the most intense. Where the mountain slopes and valleys are wooded, the flow of these cold currents is greatly impeded. That the cold sometimes descends as if brought down from the upper atmosphere, is a fact long ago observed, but the approximate rate at which it descends was first pointed out by me in the summer of 1871, in a book Mt. Washington in Winter. By comparing the observation taken during January 1875, at the government station on Mt. Washington and those taken at Whitefield, the descent of the cold is clearly shown. The observations of the 10th, and 11th, the 15th and 16th, are very noticeable.

	Mt. Washington. 7 A. M.	Whitefield. 7 A. M.		Mt. Washington, 7 A. M.	Whitefield, 7 A. M.
1	–12	4	17	–24	–17
2	15	4	18	–6	–23
3	–8	17	19	–21	–34
4	3	14	20	–19	–27
5	0	15	21	–6	–15
6	–5	6	22	10	9
7	10	12	23	–11	10
8	4	23	24	17	–16
9	3	17	25	6	24
10	–24	–4	26	–20	–3
11	–10	–12	27	–21	1
12	–10	–17	28	11	–19
13	14	4	29	13	20
14	0	20	30	13	2
15	–33	–6	31	2	–4
16	–8	–28			
Mean				–2	- 0.6

The decrease of temperature as we ascend comparing the observations at Hanover with those on the summit of Mt. Washington, is one degree for every three hundred and fifty four feet; but observations continued for a series of years might greatly modify this; or, if we make the comparison at different

seasons of the year, we find that the decrease, taking the monthly mean, is one degree for every five hundred feet in January, while it is the same in May for only two hundred and eighty-four feet.

OZONE.

Ozone is supposed to be the same substance as oxygen but it is endowed with different properties. It is a most powerful oxidizing agent; substances the most putrid and offensive to the smell are neutralized by it. It is produced in nature in many ways, but the most powerful agent in its production is lightning during thunder storms. In the summer of 1874 there occured a thunder storm, remarkable for the great area over which it extended and the display of electricity. In central New Hampshire when the storm in the night was at its height, the concussion was so great in the vicinity of New London, that nearly every one was awakened from sleep. The morning following the leaves of the maple trees from the bright green of early Summer were changed to a yellowish hue and the tips of many were withered. No other element of the atmosphere except nitric acid could have effected this wonderful change. In autumn it has something to do with the change of the leaves for when the color of the foliage is more brilliant than usual it is known that there is an excess of ozone.

Since it is an agent so active, its presence or its absence must be noticeable in its effects not only upon all animal life but also upon vegetation and even upon mineral substances. It is a constant, though variable, element of the atmosphere on our sea coast, it decreases inland and on the plains at the west cannot usually be detected by the ordinary tests.

We are indebted to Dr. H. A. Cutting for Diagram V. which shows the relative amount of ozone in the Upper Connecticut valley for 1872, '73 and '74. The chief interest of ozone consists in the fact that it is supposed to be closely related to health and diseases. Dr. Cutting draws the following conclusions from his observations. (1) When ozone is from three to five there is a general state of health. (2) Below that standard diseases of the nature of dysentery and cholera predominate. (3) Above that standard catarrhal and inflammatory diseases prevail. A damp atmosphere with much ozone is very marked in its effect.

THE MAP.

In order to present clearly the leading features of the climate of New Hampshire, we have prepared a map chiefly from observations taken under the direction of the Smithsonian Institution.

On the map we have traced the yearly isothermal lines. In the vicinity of Manchester there is a small area where the yearly mean, 48°, is greater than in any other part of the state. The observations extend over a period of fourteen years; hence, they ought to give at least an approximate average. An extended curve of 47°, of which Manchester is the centre, lies some five miles beyond the first, and forms an entirely isolated area. In contrast with this comparatively warm area, we find directly west an island of cold with the isotherm of 42° occupying Dublin, Nelson, Stoddard, and parts of the adjoining towns. The isotherm of 46° begins at the state line in New Ipswich, runs northward, then turns south of east, crosses the Merrimack at Thornton's Ferry, and strikes the coast at Portsmouth; thence it is deflected northward in a great curve that passes above Lake Winnipiseogee, and returns to the coast at the mouth of the Piscataqua river. The isotherm of 45° passes through Dover, runs northward near the state line, and crosses into Maine from Effingham; the other end of it begins at South Charlestown, is deflected southward through Francestown, then runs northward nearly parallel with the Merrimack, passes around Newfound lake above Squam, thence through Tamworth, Madison, and Eaton, connecting with the other part of it in Maine. The isotherm of 44° on the west, is a sharp curve beginning at North Charlestown, and it has its further limit in Danbury. On the eastern border of the state there is a short curve on the Saco in Conway. The isotherm of 43° is similar in shape to that of 44°, but is some ten miles northward.

The isotherm of 42° begins on the Connecticut in Plainfield, and extends eastward, but is soon deflected northward, passes above the White Mountains, through Randolph, Gorham, and Shelburne. The isotherm of 41° is just below Hanover. Westward in Vermont it is deflected southward; but in New Hampshire it is nearly parallel with 42°, except that from Lisbon a branch goes almost directly north to Lunenburg, Vt. The isotherm of 40°, the lowest mean average in the settled portions of the state, begins near North Stratford, and probably extends eastward to Umbagog lake. As we ascend the mountains the mean annual temperature decreases rapidly, so that on the summit of Mt. Washington we have an isotherm of 25°.

Referring to the map, we have isotherals, or lines of equal summer temperature: and isochimenals, or lines of equal winter temperature. For the isotherals, we have a small area about Manchester, included within the line of 70°; there is also an isotheral of 70°, extending along the northern border of Lake Winnipiseogee, thence through Ossipee to the line of Maine. The isotheral of 69° is below Rochester, and there is a more extended area of the same through Tamworth, Madison, and Eaton. The isotheral of 68° corresponds with the isotherm of 47°. The curve of 67° is the most variable of all the isotheral lines. It begins at the Connecticut, near Claremont, is deflected southward to Francestown, then northward to Barnstead, then southward again as far as Exeter, when it turns north and passes between Dover and Great Falls.

The curve of 66° begins on the coast near Portsmouth, and passes up the Piscataquis to Dover, where it is deflected eastward.

The isotheral of 65° passes up the river from Hanover, thence up the Ammonoosuc,—makes a sharp curve to the Connecticut, at Lancaster, then runs through Randolph, Gorham, and Shelburne; that of 64° runs through Stoddard, Nelson, Dublin, and Peterborough; that of 63° begins in North Littleton, goes northward through Lunenburg, Vt., and then is deflected eastward and across New Hampshire, near the Grand Trunk Railway. The isotheral of 62° is in the towns of Colebrook, Dixville, and Errol; and that of 47° touches the top of Mt. Washington.

The general direction of the isochimenal lines are the same as those of the isotheral. We have an island of cold on the line between Cheshire and Hillsborough counties, a warm area in the vicinity of Manchester, a gradual increase of the cold inland from the ocean at Portsmouth, and the same deflection northward,—but not to so great a degree,—of the lines beginning at the Connecticut. The marked conformity of the isochimenals of 19°, 17°, and 16°, with the isotherals of 65°, 63°, and 62°, is quite remarkable.

We have also represented the entire annual aqueous precipitation. The area of greatest precipitation is in the central portion of the state, in the vicinity of Newfound lake, and it extends north at least as far as Ashland, and southward probably as far as Franklin. The rain-fall in this area, including melted snow, is 46 inches. There is an area of 45 inches from Hooksett southward toward the state line, and the table would give us a small area in the vicinity of West Enfield; but, as there seems to be some doubt as to the accuracy for that locality, we have omitted it on the map. In the southwest part of the state, below a line from Claremont and extending to a point just north of Concord, there is a large area where the precipitation is 43 inches. There is an area of 42 inches north of Claremont, perhaps ten miles in width, extending to the Merrimack river, thence northward along the west side of Lake Winnipiseogee, when the area widens so that it includes almost the whole portion of the state north of the lake to a line above the Grand Trunk Railway. In the north part of the state, above 42, there is an area of 41 inches extending across the state, and having a width of about twenty miles. There is another small area of 41 inches, extending from Bath in a curve southward as far as Plainfield. Between this and the Connecticut, embracing a part of Orford, Lyme, and Hanover, there is an area where the precipitation is only a little more than 40 inches. On the sea-coast, at least in the vicinity of Portsmouth, the rain-fall is less than in any other part of the state, being 35 inches,—but it increases as we go inland. At Dover there are 36 inches, and at Wolfeborough 38. Since the distribution of rain-fall depends in a measure on the changes of temperature, to this may be due the increase inland from the ocean.

The following record shows the time of the closing and opening of some of our lakes. That of Winnipiseogee is as follows:

Closed with Ice.	Clear of Ice.
1867—December 19.	1868—April 10.
1869—January 19.	1869—April 28.
1870—January 23.	1870—April 21.
1871—January 14.	1871—April 10.
1872—January 3.	1872—May 4.
1873—December 17.	1873—May 4.

Umbagog lake generally closes about November 15, for three successive years the lake opened May 13; was entirely clear of ice, April 28, 1871; May 10, 1872; May 11, 1873. Connecticut lake closes earlier and opens later. In 1874 there was ice in the lake the last day of May.

FROST-WORK.

The frost-work is the most remarkable phenomenon of our mountain summits. It is difficult to convey, in words, any idea of its wonderful form and beauty. It was not easy, at first, to understand how it could be formed; but we are able now to give a plausible theory to account for this the most extraordinary of all the handiwork of Nature. It is very rarely formed except when the wind is at some point between north and west, and only when there are clouds on the mountains. It begins with mere points on everything the wind reaches,—on the rocks, on the railway, and on every part of the buildings, even on the glass. On the south side of the buildings and the high rocks it is very slight, as the wind reaches there only in eddying gusts. When the surface is rough, the points, as they begin, are an inch or more apart; when smooth, it almost entirely covers the surface at the very beginning; but soon only a few points elongate, so that on whatever surface it begins to form, it has soon everywhere the same general appearance, presenting the same beautiful, feathery-like forms.

"Thus Nature works, as if defying art;
And in defiance of her rival powers,
Performing such inimitable feats,
As she, with all her rules, can never reach."

In going up Mt. Washington, we do not see the frost-work until we get above the present limit of the trees. It is nearly a mile above before it is seen in its characteristic forms, and it is only immediately about the summit that it presents its most attractive features. On all our mountains north of latitude 43° 50′, that are more than thirty-five hundred feet in height, it can be seen extending down to a certain line, and this line extends along the whole mountain range. Everywhere it appears to be at the same elevation. We notice that it always forms toward the wind, never from it; and the rapidity with which it forms, and the great length of the horizontal masses, are truly wonderful. On the piles of stones south of the house, the horizontal masses are sometimes five and six feet in length. On the southern exposures, instead of the frost-work, especially on the telegraph poles by the railway, there are only masses of pure ice, which have always a peculiar hue of greenish blue; and there is a striking contrast between this and the pure white of frost-work on the side opposite. When the thermometer ranges from 25° to 30°, and the wind is southward, ice often forms to the thickness of a foot or more on the telegraph poles near the summit. These icy masses are formed evidently by the condensation of the vapor of the atmosphere. The frost-work is also formed by the condensation of vapor, but, besides the vapor, the air must be filled with very minute spiculæ of ice. As the vapor condenses, these are caught, and thus the horizontal, feathery masses are formed. This accounts for the facts that we have observed, namely, its forming when the wind is northward, and always towards the wind.

THE WEATHER AT HIGH ALTITUDES.

As to the extraordinary weather on our mountains in winter, the following description of two days on Moosilauke is a typical illustration.

On the first day of January the sun rose up clear. We were above the clouds, and a grander spectacle one does not often behold. The clouds seemed to roll and surge like the billows of the ocean. They were of every dark and of every brilliant hue: here they were resplendent with golden light, and there they were of silvery brightness; here of rosy tints, there of sombre gray; here of snowy whiteness, there of murky darkness; here gorgeous with the play of colors, and there the livid light flashes deep down into the gulfs formed by the eddying mist, while

"Far overhead
The sky, without a vapor or a stain
Intensely blue, even deepened into purple
When nearer the horizon it received
A tincture from the mist that there dissolved
Into the viewless air. . . . The sky bent round
The awful dome of a most mighty temple,
Built by Omnipotent hand for nothing less
Than infinite worship. So beautiful,
So bright, so glorious! . . . Such a majesty
In yon pure vault! So many dazzling tints
In yonder waste of waves."

But above all these clouds, these flashes of light, this darkness, rises in stately grandeur the summit of Mt. Washington, "sublime in its canopy of snow;" and Lafayette, with a few peaks of lesser altitude, glitters in the bright sunlight. As the sun rises higher, the picture fades away, and the whole country is flooded with light. Did this grandeur, this magnificence, this grand display of lights, of shadows, and shades,—these clouds, so resplendent, so beautiful,—portend a storm? In the evening the wind changed to the south-east, and increased in velocity.

At daylight, on the second, it was snowing. This soon changed to sleet, and then to rain; and at 8 A. M., the velocity of the wind was 70 miles per hour. At 12, there was a perfect tempest. Although the wind was so fearful, yet Mr. Clough was determined to know the exact rate at which it was blowing. By clinging to the rocks he succeeded in reaching a place where he could expose the anemometer, and not be blown away himself. He found the velocity to be 97½ miles per hour,—the greatest velocity, until that time, ever recorded. When he reached the house he was thoroughly saturated, the wind having driven the rain through every garment, although they were of the heaviest material, as though they were made of the lightest fabric. During the afternoon, the rain and gale continued with unabated violence. The rain was driven through every crack and crevice of the house, and the floor of our room was flooded. So fierce was the draught of the stove, that the wind literally took away every spark of fire, leaving only the half-charred wood in the stove; and it was with the greatest difficulty that we succeeded in rekindling it. During the evening, the wind seemed to increase in fury; and although the window was somewhat protected, yet nearly every glass that was exposed was broken by the pressure of the gale. As the lights were broken, the fire was again extinguished; and even my hurricane lantern was blown out as quickly as if the flame had been unprotected. Darkness, if not terror, reigned; but calmness, with energy, are requisites for such an occasion, and, fortunately, they were not wanting now. Our necessities quickly showed us what to do. By nailing boards across the windows, and by use of blankets, we stopped the openings the wind had made. After 9 P. M. there were occasional lulls in the storm, and by 12 it had considerably abated, at least enough to bring on that depression that naturally succeeds a period of intense excitement;—so we willingly yield ourselves to sleep, to dream of gentle zephyrs and sunny skies.

Although as a rule rains in winter are not common on the summits of our high mountains, yet observations thus far show that some winters they may be quite frequent.

As already indicated, the clouds are often spread out in a thin stratum over a large area, and we look forth upon an illimitable sea of mist glittering in the sunlight, while every peak, except that on which we stand, is concealed by clouds. So it is not uncommon for it to be a dark day in the valleys, while on the summit of the mountain we are in the bright sunlight. Sometimes the clouds are two thousand feet below the summit of Mt. Washington;—in that case, innumerable mountain peaks protude, and seem like islands in an ocean bounded only by the sky. The formation and the dissolving of clouds is an interesting feature. It often happens that the whole country westward is covered with clouds, but when they have passed the ridge running directly south from Mt. Washington, they are instantly dissolved, never passing a certain point, although moving at the rate of fifty or sixty miles per hour, when that point is reached. In spring and summer, instead of these horizontal layers, the clouds assume cumulose forms, and from the mountain they can be seen rising vertically thousands of feet in an incredibly short space of time. During the steady cold weather of winter, the upper clouds were never seen to move except in the same direction as the wind on the summit of the mountain.

WIND AND RAIN.

Of all phenomena, the wind is the most terrific. Usually during periods of storm, the wind increases steadily in velocity until

it reaches its culmination: then there are lulls, at first only for an instant, and these continually lengthen until the storm ceases. The greatest velocity that has been measured is 140 miles per hour; and during one night the mean of four observations was 128 miles. The most remarkable fact in relation to the wind is the great velocity on the summit when there is a calm at the base. One observation shows that there was a wind of 96 miles per hour on the summit, when, at the depot of the Mt. Washington Railway, 2,677 feet below, there was not wind enough to move the anemometer.

In general, winds of very great velocity are usually limited to winter, and to the time when there are clouds on the mountain. The prevailing winds for the entire year are west and north-west. It is a noticeable fact that, while the northerly and westerly winds have a much greater velocity on the summit than below, the southerly winds have frequently a greater velocity five hundred or a thousand feet below than on the summit.

Aqueous Precipitation.

The observations for one year give the amount of aqueous precipitation as 55 inches, and it is confined mainly to summer and autumn,—the entire precipitation for winter and spring being given as only about eight inches, leaving 47 inches for summer and autumn. There are no means of determining the actual amount of frost-work and snow, but we know that the snow-fall is very slight during autumn and winter, the snow-cloud being below the summit; but in spring, when showers become frequent in the valleys, there are invariably heavy falls of snow on the mountain. During a thunder-storm in April, when the thunder could be heard and the lightning seen, we were having one of the thickest snow-storms of the season.

Probably there is no place where the optical phenomena are more brilliant than on Mt. Washington. Rainbows, with three supernumerary bows, have been seen for hours on the clouds; coronas, of large and small dimensions; anthelia, or glories of light, the prismatic circles surrounding the shadow cast far out on the cloud; halos, and parhelia. The spectre of the Bröcken, though rare, was seen by Mr. S. A. Nelson.

Diagrams.

Fig. 1 shows the fluctuations in the annual rain-fall in the Atlantic states,—Maine to Maryland,—from 1805 to 1867. From the fluctuations as shown in this diagram, there are groups of years of unusual amount of rain, followed by groups of years of drouth; and, on the whole, it indicates an increase of rain. The figures on the left are the per-centage of the mean amount.

Fig. 2 shows the fluctuations in the annual rain-fall in the upper Connecticut valley, from observations taken at Lunenburg, Vt. This shows similar groups of years. An unusual amount of rain-fall does not necessarily imply that it was distributed throughout the year, so that there was no drouth in summer; for, while the amount of rain in 1871 was above the average, yet the summer of that year was regarded as very dry.

Fig. 3 shows the fluctuations in the annual snow-fall at the same locality, and by the same observer, as in diagram II. The fluctuation, however, is greater than in the rain-fall; for the greatest amount, 167.5 inches, is more than twice as much as the mean, 83.1 inches, and the least amount, 41 inches, is less than half the mean; yet there are similar groups of years, though at no time does it show more than three consecutive years, when the amount was greater than the mean.

Fig. 4 shows the annual fluctuations in rain-fall at Lake Village from 1857 to 1873. The observations were taken under direction of the Lake Company.

Fig. 5 shows the fluctuations of Ozone for 1872, 1873, and 1874. White cloth, prepared with iodide of potassium and starch, is changed by Ozone to various tints of brown. The scale adopted for describing the amount present in the atmosphere, is from 0 to 10, the last gives the deepest shade of brown. The diagram will enable physians to judge something, of the effect of Ozone on health and disease, for the years given, and may stimulate to investigate the subject.

[For *Figs.* 1, 2, 3 and 4, see page 21.]

RAIN TABLE.

Compiled from the Smithsonian Rain Tables and other Observations, by J. H. Huntington.

Names of Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Spring.	Summer.	Autumn.	Winter.	Year.
Cornish, Me.,	3.70	3.86	4.41	4.07	3.36	3.60	4.21	4.67	2.99	4.45	4.91	3.01	11.84	12.48	12.36	11.17	47.85
Fryeburg, Me.,	2.45	3.16	2.12	3.52	3.86	3.29	2.17	5.59	3.59	4.84	5.99	4.41	9.59	11.05	14.52	10.64	45.11
Ft. Constitution,	2.42	2.64	2.15	3.41	3.11	3.01	2.40	3.80	2.43	3.29	3.23	3.41	9.04	9.21	8.95	8.38	35.58
Portsmouth,	3.39	2.47	2.04	1.01	3.02	2.72	2.26	3.41	1.99	3.76	2.29	1.58	6.07	8.33	8.04	7.44	29.88
Londonderry,	3.69	3.93	2.47	4.50	5.53	2.33	2.07	4.89	2.07	5.26	5.51	8.46	12.60	9.29	12.34	11.46	45.61
Manchester,	2.74	3.94	2.07	4.78	4.83	1.94	2.86	6.33	3.51	3.58	4.06	4.10	11.64	11.13	11.58	10.78	45.17
N. Barnstead,	2.43	1.88	2.70	1.91	4.60	1.70	2.37	3.59	2.56	3.78	5.45	2.02	9.21	7.66	9.70	6.33	32.99
Ashland,	4.02	3.56	3.70	3.38	3.39	2.50	4.32	4.16	3.77	5.84	4.57	3.57	10.47	11.00	13.88	11.15	46.50
Bristol,	3.84	3.58	4.38	3.41	3.03	3.02	5.12	3.50	3.55	5.61	3.84	3.30	10.82	11.61	12.90	10.72	46.08
Lake Village,	3.41	3.55	3.15	3.59	2.45	2.59	4.66	3.38	4.19	4.33	4.55	2.80	9.32	15.63	13.07	0.76	42.78
Meredith,	3.38	3.08	3.03	4.75	3.66	2.52	3.41	3.08	4.41	5.12	4.56	2.86	11.49	9.11	14.10	9.33	44.03
Wiers,	3.63	3.67	3.84	3.02	2.45	2.04	4.59	3.58	3.81	4.24	4.06	3.01	9.41	11.11	12.13	10.31	42.86
Wolfeborough,	3.53	2.61	4.01	3.32	2.16	2.57	4.55	3.64	2.45	4.20	3.06	2.44	9.57	11.36	10.31	8.78	39.96
Concord,	2.92	3.31	2.38	3.49	3.97	2.72	3.68	4.17	3.43	4.26	3.62	3.01	9.84	15.57	11.31	9.27	40.99
Claremont,	2.96	3.26	4.99	3.32	3.96	2.93	3.94	4.92	3.51	4.15	2.38	3.37	12.27	11.79	10.01	9.59	43.69
West Enfield,	3.72	1.46	2.50	6.37	3.25	3.69	9.25	4.23	3.69	5.85	2.96	1.75	11.12	17.23	12.50	6.03	47.77
Hanover,	2.85	2.70	2.98	3.13	3.46	3.89	3.11	3.79	3.17	4.01	3.40	3.52	9.57	11.09	10.58	9.08	40.32
Mt. Washington,	1.67	.29	.83	.07	4.62	18.46	3.69	6.33	9.55	5.15	3.52	.85	5.52	28.37	19.06	2.81	55.70
Stratford,	2.77	2.52	3.47	2.48	3.31	3.21	4.42	3.64	3.98	3.64	3.21	3.08	9.26	11.60	10.83	8.37	39.96
Woodstock, Vt.	2.50	1.45	1.67	2.78	4.95	3.90	4.94	4.33	3.44	5.25	2.96	3.25	9.40	12.33	11.60	7.20	40.58
Lunenburg, Vt.	3.22	2.09	3.17	2.51	4.27	2.02	3.45	3.37	4.12	3.51	3.37	4.15	9.05	8.84	11.33	9.45	39.58

TEMPERATURE TABLE.

Prepared by the Smithsonian Institution.

Name of Station.	Height.	° January.	° February.	° March.	° April.	° May.	° June.	° July.	° August.	° September.	° October.	° November.	° December.	° Spring.	° Summer.	° Autumn.	° Winter.	° Year.
Charlestown,	....	....	....	....	41.97	....	....	69.96	68.11	....	45.67	....	26.61	....	....	....	....	....
Claremont,	575	18.35	22.47	30.79	43.51	54.96	65.27	69.21	66.56	68.48	40.53	37.11	23.68	43.09	67.01	47.37	21.60	44.74
Concord,	292	20.84	22.73	31.49	43.21	59.17	65.66	69.91	66.80	59.16	48.82	37.96	24.87	43.62	67.52	48.64	22.81	45.66
Contoocookville,	381	....	....	....	....	....	....	....	....	....	....	39.83	25.85	....	....	....	....	....
Dover,	150	24.	23.60	31.60	42.70	53.70	63.90	76.40	61.70	58.80	46.40	35.50	25.20	42.78	66.33	46.90	24.27	45.06
Dublin,	1,809	18.32	21.58	27.70	36.99	49.14	63.18	67.15	64.12	67.37	45.44	33.07	21.14	37.94	64.84	45.49	20.41	42.17
Dunbarton,	750	27.74	21.78	30.08	42.00	54.54	60.44	72.84	70.25	61.20	48.89	36.65	20.38	42.41	69.64	49.91	26.30	46.87
Epping,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	44.75
Exeter,	53	19.89	21.20	31.41	40.55	54.47	63.81	69.59	67.82	59.	49.22	38.00	25.33	42.31	67.17	48.76	22.14	45.10
Farmington,	300	22.20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Farmouth, b	490	23.98	22.15	26.41	43.19	55.50	60.99	71.32	68.20	67.99	45.38	33.13	24.	41.70	69.54	45.50	23.33	45.03
Ft. Constitution,	40	24.89	26.26	34.37	43.26	53.50	62.34	67.06	65.06	69.12	49.64	38.89	28.74	43.71	64.82	49.19	26.63	46.09
Francestown,	....	18.58	24.29	30.09	42.	53.50	64.09	60.32	8.15	59.45	47.09	38.19	29.45	41.89	67.19	46.21	24.11	45.36
Great Falls, c	250	21.32	20.25	31.96	41.78	55.83	64.75	75.60	68.90	60.98	51.01	38.15	24.13	43.15	69.73	50.05	21.23	46.13
Hanover, (D. C.)	604	16.24	15.47	26.18	37.60	52.53	61.09	65.65	63.34	55.55	44.30	32.11	17.08	38.78	63.57	41.05	16.26	40.67
Hanover, d	604	17.62	18.89	29.10	40.10	53.40	62.56	67.16	60.60	56.33	44.16	33.76	20.99	40.67	65.15	44.76	19.17	42.49
Keene,	....	....	....	....	41.20	54.60	....	68.79	70.40	....	44.80	31.20	23.50	....	....	....	....	....
Littleton, e	....	17.67	18.40	24.44	53.62	52.54	58.91	66.60	65.61	55.58	46.60	33.90	15.09	35.63	63.77	45.36	17.03	41.20
Londonderry,	300	22.64	24.38	31.89	43.48	60.21	66.36	71.60	68.41	61.09	50.61	38.87	26.91	43.86	68.82	50.19	24.37	46.84
London Ridge,	475	23.70	30.77	38.45	49.18	62.23	67.20	74.08	72.85	70.25	....	42.28	33.03	46.65	71.38	....	29.17	....
Manchester	300	23.84	26.38	34.06	45.01	64.34	67.51	72.94	60.67	62.11	61.09	40.22	27.46	47.80	70.02	51.14	25.90	45.72
Mason,	....	20.19	31.70	30.16	43.60	....	66.10	66.80	67.90	....	....	....	26.20	....	67.60	....	29.	....
Mt. Washington,	6,293	6.4	6.9	9.7	22.6	53.3	44.5	47.9	60.7	39.3	29.8	16.5	6.4	21.8	47.7	28.5	6 2.	28
N. Barnstead, g	....	21.65	24.74	31.03	43.27	54.49	64.04	69.	68.12	60.86	45.29	38.77	25.44	42.93	67.08	49.31	23.04	45.81
Portsmouth,	12	26.45	27.76	30.85	47.16	57.15	65.60	69.60	68.15	60.35	48.80	34.80	26.20	45.03	67.67	47.99	26.47	46.84
Portsmouth,	12	21.62	27.48	36.	43.07	53.	63.96	69.37	67.64	59.64	47.63	36.36	26.35	44.02	66.99	47.84	25.15	45.42
Salisbury,	....	16.83	20.33	31.42	42.16	....	....	....	....	61.55	47.43	36.37	27.30	....	....	48.42	22.15	....
Shelburne,	728	16.32	19.26	27.44	39.60	52.07	62.91	60.36	61.18	55.46	43.74	33.35	20.21	39.77	65.48	44.50	18.60	42.01
Stratford,	1000	13.27	17.17	24.92	37.37	50.64	61.36	65.21	62.27	64.46	42.21	31.37	16.07	37.71	62.95	42.68	15.07	39.85
Wakefield,	....	23.	28.60	30.25	40.80	61.20	73.40	70.40	77.20	67.50	52.80	44.20	31.60	50.08	76.67	54.86	29.53	52.78
West Enfield,	....	20.10	20.11	27.25	39.07	61.77	63.85	68.73	65.48	68.26	45.58	31.80	19.58	39.38	66.02	45.23	19.92	42.28
Whitefield,	1332	22.50	16.35	24.18	43.65	53.23	64.48	67.61	62.42	67.68	43.43	31.36	21.73	40.35	64.54	41.18	20.19	42.30

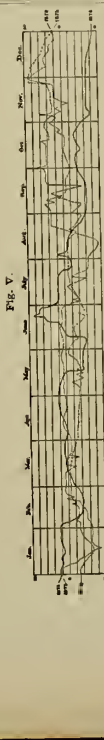


Fig. V.

THE DISTRIBUTION OF TREES IN NEW HAMPSHIRE.

BY WILLIAM F. FLINT.

ORIGINALLY the State, almost without exception, was clothed with a dense forest. This forest presented the same characteristics as at the present day. Its only change is that it has been greatly restricted in area by the hand of man. Its leading trees were pines, spruces, oaks, and hickories, the beech, chestnut, white, red, and sugar maples, the butternut, birches, elm, white and black ashes, basswood, and poplars. Among shrubs were the blueberries, the huckleberry, mountain ash, mountain laurel, azalea, alders, and willows; and, trailing over rocks and shrubbery, the wild grape, Virginia creeper, and virgin's bower.

A traveller, passing from one end of the State to the other, cannot fail to observe the contrast in the aspect of the vegetation of its northern and southern portions, caused by the different temperature consequent upon the difference in altitude. The flora of New England has been classed in two divisions, based upon this fact, which may be termed the Alleghanian and the Canadian, because they seem to correspond with the faunas of the same names described in the previous chapter. Of course, however, no separating line, or definite and sudden change, is anywhere noticed. The transition is gradual, some species becoming scarce and finally disappearing, while others first appear in small numbers, but increase as the traveller advances, and at length supply the place of the former as the prevailing forms of vegetation. Many other species, probably one half in number of our whole flora (not being so readily influenced by a difference of temperature), have a range extending over the entire State. If it were attempted to draw the line between these divisions, on each side of which would of course be included species more particularly characteristic of the other, it might be extended, approximately, from North Conway to Lake Winnipiseogee, and thence to Hanover or vicinity. The transition area is thus at an elevation of about five or six hundred feet above the sea, corresponding approximately to the isothermal line of 45° mean annual temperature, or to 20° during the winter and 65° during the summer months.

Among the species which are characteristic of the Alleghanian division, but find their northern limit before reaching this line or soon after it is crossed, may be mentioned the chestnut, the white oak, spoonwood or mountain laurel, and the frost grape (*Vitis cordifolia*). The range of our pines and walnuts, of white or river maple, red oak, and hemlock, is also mainly southern.

The most characteristic trees of the Canadian division are sugar maple, beech, balsam fir, black and white spruce, and arbor-vitæ; among its shrubs are the mountain and striped maples, and the mountain ash. Of these the white spruce and arbor-vitæ have the most limited range; the former is abundant about Connecticut lake, but occurs rarely, if at all, south of Colebrook; the latter, often incorrectly called "white cedar," is also common in this section, extending south to the vicinity of the White Mountains. It is also occasionally found in highland swamps farther south.

Forest Trees.

Among the twenty-seven natural orders which make up the greater part of the flora of New Hampshire, we find the pine family the most important, either as a prominent feature of the landscape, or as contributing to the wealth of the State. First in this family is the white pine, which has been the most valued of our forest trees ever since the servants of King George roused the indignation of the pioneers by placing their "broad arrow" on the best mast trees of the Merrimack valley. When the country was covered by the primeval forest, this tree filled all the river valleys with a stately growth, extending along that of the Connecticut to the northern boundary. At the present day this growth has nearly disappeared before the lumberman's axe, but the great abundance of saplings in the southern part of the state shows that this species is still the principal conifer of that section. Passing northward into Coös county, we find the white pine much restricted in area, occurring mostly at the head waters of the streams, and mainly confined to first growth specimens, saplings being of rare occurrence, even where the land is allowed to return to forest after clearing.

The pitch and red pines are much more limited in range than the foregoing. The pitch pine finds its most congenial soil along the sandy plains and drift knolls of the river valleys, scarcely growing on hills that attain much elevation above the sea level. It is found most abundantly in the south-eastern part of the State, in the Merrimack valley, and around Lakes Winnipiseogee and Ossipee, extending northward as far as North Conway. In the valley of the Connecticut it appears less abundantly. The red pine, often wrongly called "Norway pine," is the most social of the pine genus found with us, occurring in groups of from a few individuals to groves containing several acres. Although much less common, its range is nearly the same as that of the pitch pine, probably attaining a higher elevation above the sea level. This species is of handsome appearance and rapid growth, and is well worthy to be planted for ornament.

In the White Mountain region, the balsam fir and black spruce, growing together in about equal numbers, give to the scenery one of its peculiar features. The stiff, spiked forms of the one are mingled with the blackish green foliage of the other almost universally along the mountain sides, and are the last of arborescent vegetation to yield to the increased cold and fierce winds of the higher summits. North of the mountains these trees, with arbor vitæ, are the predominant evergreens, mingling with the white spruce about Connecticut lake. In the southern part of the State they are mostly confined to the highlands between the Merrimack and Connecticut, the black spruce appearing most abundantly.

The hemlock, which when young is the most graceful of the spruces, is common in the southern part of the State, ranging in greatest abundance from around the base of the White Mountains southward along the highlands, becoming less common near the coast. It has its northern limit in the vicinity of Colebrook and Umbagog lake, reaching an elevation of about twelve hundred feet above the sea.

"Our arbor vitæ is," says Prof. Gray, "the physiognomic tree of our cold swamps at the north and in Canada." This tree, very rarely seen in southern New Hampshire except when cultivated for a hedge,* enters as a prominent element into the flora of Coös county, growing most abundantly along the borders of slow streams and in swamps, and varying from thirty to fifty feet in height.

Hackmatacks, or tamaracks, do not enter largely into our flora, but are of very graceful appearance wherever they are seen. This species is chiefly found in swamps of small extent, and ranges along the highlands from

Massachusetts to north of the White Mountains. The red cedar, or savin, has the most limited range of all our trees belonging to this family, eccurring mostly near the sea coast in sterile soil.† Juniper, of the same family, is sometimes troublesome by overspreading hilly pastures. The Canadian variety of the yew is often present in cold land swamps as an under shrub, familiarly known by the name of "ground hemlock."

While the evergreens wear the same sombre aspect throughout the year, the deciduous trees present every phase of change from leafless branches in winter to the delicate green of spring, the full leafage of summer, and the gorgeous hues of autumn; so that to them are due some of the most pleasing features of New Hampshire scenery. This effect is increased by their greater number of species as compared with the evergreens, and by their heterogeneous mode of growth, a forest of deciduous trees generally containing several species, growing in about equal numbers. In our forests the most important of these are maples, beech, birches, chestnut, and oaks; and, less abundantly, elm, butternut, hickory, ashes, cherries, basswood, and poplars.

The maples are best represented, all the species growing in the northern United States being present. First among these are our white, red, and sugar maples, all being large trees. The white or river maple is the most limited in range, being confined to the intervals of the principal streams, and rarely found away from them. The red maple (often wrongly called white maple) is the most widely spread species, being common to all parts of the State, and giving the brilliant scarlet hue of our woodlands in autumn. The rock or sugar maple is the largest of the genus, and fills an important part in the economy of the State, furnishing sugar and valuable timber. It is common on hillsides throughout most of the State and along many of the streams, but is rare toward the seacoast.

The beech and the sugar maple are the most common deciduous trees of Coös county, making up the greater part of the "hardwood" forests. Southward, beech is common to the highlands only, often growing with spruces and hemlocks.

Four species of birch are common. Three of them,—the black, yellow, and canoe birches,—have the same range as the red maple, for the most part; but the canoe or paper birch seems to attain the highest elevation, being found high up the sides of the mountains, its white bark in striking contrast with the dark trunks and foliage of the firs and spruces. The fourth and smallest of these, the white birch, is distinguished for its light and graceful foliage, which renders it a pleasing feature wherever it is found. It is most abundant in the south-eastern part of the State, springing up along sandy plains and around the edges of woodland. Its growth is rapid, rising again, when cut down, by shoots from the root. This species supplies the "gray birch hoop-poles" used in the manufacture of fish barrels.

Five or six species of oaks are found here. Of these the red oak is the hardiest, but, although the only species found along the water shed between the Merrimack and Connecticut, it does not extend much beyond the White Mountains, having its upper limit at about one thousand feet above the sea. The white and yellow oaks usually appear together, growing on the plains and hillsides along the rivers. The former of these, especially valuable for the strength and durability of its timber, extends northward in the Connecticut valley nearly to the mouth of the Passumpsic, in the Merrimack valley to Plymouth, and, in the eastern part of the State, to the vicinity of Ossipee lake. Its limit in altitude is about five hundred feet above the sea, which is also very nearly that of the frost grape. The barren or scrub oak is abundant on the pine plains of the lower Merrimack valley, thence extending eastward to the coast, and to the sandy plains of Madison and Conway. The chestnut oak seems to be local in this state; at Amherst and West Ossipee it can be found abundantly.

The chestnut is found in the same situations as the white oak, but is the first to reach its limit in altitude, which is at a height of about four hundred feet above the sea. It occurs in a few localities about Lake Winnipiseogee at a somewhat greater height, the neighborhood of the lake producing less severity of temperature than in the river valleys at the same altitude.

The American elm attains probably the largest size of any of our deciduous trees. This naturally finds its home in the alluvial soil of our rivers. It has also been the most extensively planted for shade and ornament of all our trees, excepting perhaps the sugar maple. Owing to its majestic appearance, it is very conspicuous wherever present, but the number growing together is generally small.

Butternuts also prefer the borders of streams, and, in the valley of the Pemigewasset, extend northward to the base of the mountains. Hickories are most common in the lower Merrimack valley, the shellbark extending northward to the vicinity of Lake Winnipiseogee. Basswood is found mostly on highlands, but is not very common. The black cherry is found throughout the State, usually most common near streams.

Two species of poplar are commonly found. The first is a small tree, very common in light soil, and often springing in great abundance where woodland is cleared away. The other may be a large tree, with dark colored bark on the trunk, whence it is often called "black poplar." In spring the young leaves are clothed with white down, by which this species can then be distinguished at a great distance.

The Alpine Flora.

The wind-swept summits of our White Mountains are to the botanist the most interesting locality east of the Mississippi, for there are found the lingering remnants of a flora once common probably to all New England, but which, since the close of the glacial epoch, has, with few exceptions, retreated to Arctic America. On the highest of these mountains, only, are found the conditions favorable to the growth of these arctic plants. Of these alpine areas, Mt. Washington and the adjacent peaks are the largest, being a treeless region at least eight miles long by two miles wide at its broadest part. These alpine plants are of great hardihood, and sometimes bloom amid ice and snow. About fifty species are strictly alpine, and never found elsewhere with us. These are accompanied by about as many other species, which are also found at the base of the mountains, and sometimes throughout the State. These may be called sub-alpine, being found in the ravines and on the lower portions of the treeless areas, but not upon the higher summits.

The peculiar flora of these heights, almost wholly consisting of plants never found at lower elevations south of arctic latitudes, but identical with those found on Mt. Katahdin in Maine, and the Adirondacks in New York, has led naturalists to inquire how it is possible to account for this idenity of species found at a few isolated stations in the midst of the temperate zone, with those of regions more than a thousand miles north. The conditions of climate which prevail over the intervening territory render it impossible for these plants to maintain their existence, and show that they never have migrated to these stations under ordinary causes. The science of geology has led to the probable solution of this problem. It has been found necessary, for the explanation of many phenomena in the surface geology of the northern temperate zone, to suppose that at a comparatively recent geological period the climatic conditions were wholly different from those of the present time. The ruins of a burned building do not tell their story more plainly than do the boulders of our hills and the worn and striated sides of our mountains prove the existence of glaciers and icebergs among them at no very distant date in geological history. The explanation which this affords of the origin of an arctic flora upon high mountains in the temperate zone, has been pointed out by one of the foremost theorists of the present day. As the low temperature of the frigid zone became gradually extended over this whole area, the forms of vegetation peculiar to an arctic climate took the place of those which had previously existed, while these receded to the south. Again, upon the gradual return of a more genial climate throughout this area, the arctic flora disappeared, following the retreat of the causes by which it was brought, and only remaining, with the reestablishment of warmth and fertility, upon those higher mountain summits whose elevation renders them arctic islands in the middle of the temperate zone. He who ascends to this altitude has a similar opportunity for botanic study as if he made a journey to the north, passing first from the noble forests, with which we are familar, to those of stunted

growth, and, finally leaving them behind altogether, at length arriving at the barren and bleak regions beneath the Arctic Circle.

In approaching these mountain summits, one is first struck by the appearance of the firs and spruces, which gradually become more and more dwarfish, at length rising but a few feet from the ground, the branches spreading out horizontally many feet, and becoming thickly interwoven. These present a comparatively even upper surface, which is often firm enough to walk upon. At length these disappear wholly, and give place to the Lapland rhododendron, Labrador tea, dwarf birch, and alpine willows, all of which, after rising a few inches above the ground, spread out over the surface of the nearest rock, thereby gaining warmth, which enables them to exist in spite of tempest and cold. These in their turn give place to the Greenland sandwort, the diapensia, the cassiope, and others, with arctic rushes, sedges, and lichens, which flourish on the very summits.

Introduced Plants.

As shown from field notes in my catalogue published in the first volume of the "Geology of New Hampshire," there are more than one thousand species of plants found in New Hampshire. Of these about one hundred are "introduced," having been imported, either intentionally or otherwise, through the agency of man. Some of them are indigenous in other parts of our own country, but the greater part come from Europe. Many of them have increased until they are found in all cultivated soils, while others establish themselves only locally. In the former class are most of the "weeds of cultivation," and nearly all the grasses mown for hay. Most of these plants, although so well established under the present conditions, would probably altogether disappear were the country allowed to return again to its natural state.

PRINCIPAL MECHANICAL AND MANUFACTURING INDUSTRIES.

From the United States Census of 1870.

Mechanical or Manufacturing Industry.	No. of Establishments.	No. of Hands employed.	Capital invested.	Annual Wages paid.	Cost of Materials.	Value of Product.
Agricultural Implements,	24	184	$ 174,550.00	$ 78,505.00	$ 77,714.00	$ 254,470.00
Belting and Hose,	5	17	28,000.00	6,800.00	90,796.00	115,460.00
Blacksmithing,	303	596	211,090.00	112,719.00	144,844.00	467,704.00
Boots and Shoes,	257	3,107	1,003,215.00	1,228,314.00	3,011,992.00	6,162,259.00
Bakeries,	14	76	53,500.00	30,836.00	137,620.00	206,612.00
Breweries,	4	113	131,805.00	112,040.00	88,570.00	313,831.00
Brick,	57	544	276,810.00	53,800.00	373,156.00	635.880.00
Carriages and Wagons,	119	826	554,055.00	374,692.00	333,992.00	938,834.00
Clothing,	75	798	250,340.00	207,358.00	451,930.00	820,714.00
Cotton Goods,	35	12,541	13,331,710.00	3,989,853.00	12,318,447.00	16,999,072.00
Edge Tools and Axes,	3	71	80,750.00	35,665.00	48,725.00	114,200.00
Fire Engines,	1	365	300,000.00	46,497.00	477,133.00	800,000.00
Flax and Linen Goods,	1	88	93,750.00	27,000.00	132,000.00	175,000.00
Flouring and Grist Mills,	195	388	669,340.00	74,914.00	2,496,054.00	2,747,973.00
Furniture,	58	1,104	731,300.00	495,673.00	676,332.00	1,475,776.00
Hosiery,	28	1,081	855,460.00	405,003.00	881,646.00	1,757,445 00
Iron, Wrought,	4	175	189,000.00	87,500.00	433,110.00	642,800.00
Iron, Cast,	26	506	500,760.00	285,165.00	458,796.00	914,568.00
Leather,	127	676	1,235,800.00	273,438.00	3,047,719.00	3,758,236.00
Machinery, Cotton and Woolen,	31	386	272,450.00	149,932.00	126,389.00	386,205.00
Machinery, Miscellaneous,	36	397	341,150.00	190,786.00	165,266.00	500,550.00
Paper,	32	648	1,079,000.00	240,473.00	1,080,372.00	1,853,595.00
Print Works, Cotton and Woolen,	3	635	678,000.00	273,225.00	4,118,453.00	4,670,333.00
Printing and Publishing,	45	302	336,400.00	118,904.00	115,772.00	392,707.00
Saddlery and Harness,	85	260	133.540.00	80,401.00	137,778.00	306,720.00
Sash, Doors and Blinds,	28	354	243,450.00	159,130.00	223,931.00	481,656.00
Starch,	66	294	246,200.00	23,381.00	308,698.00	405,242.00
Tin, Copper and Sheet Iron Ware,	57	191	137,650.00	64.115.00	123,760.00	261,675.00
Wooden Ware,	60	416	273,400.00	144.848.00	149,322.00	449,220.00
Woolen Goods,	66	3,729	4,598,800.00	1,353,992.00	5,264,520.00	8,703,307.00
Worsted Goods,	2	1,161	700,000.00	378,017.00	1,032,118.00	1,447,422.00

RAILROADS IN NEW HAMPSHIRE.

BY WARREN UPHAM.

THE rapid development, during the last forty years, of the agricultural and mineral resources of the United States, the growth of manufactures, and the increase in population and wealth, have been due in a large measure to the facilities for communication and trade supplied by the railroad. By this the grain of the West, the coal of Pennsylvania, and the manufactured products of New England, find a market, and the journey from Boston to San Francisco, 3450 miles, can be accomplished in seven days. In 1826 the first railroad in this country was built in Quincy, Mass., three miles in length, to carry granite from the quarries to tide water. From this beginning the work has advanced, till in 1874, there were 71,500 miles of railway in the United States.

Railroads from Boston to Providence, Lowell, and Worcester, were opened in succession during the same year, on June 2, June 27, and July 6, 1835. This year is the date of incorporation of three railroads in New-Hampshire, the Nashua & Lowell, Concord, and Boston & Maine. In the following year the Eastern Railroad in New Hampshire was incorporated. All these were built and in successful operation in 1842.

The companies next incorporated, during the years 1844 to 1848, were the Northern, Great Falls & Conway, Boston, Concord & Montreal, Cheshire, Ashuelot, Wilton, Worcester & Nashua, Concord & Portsmouth, Peterborough & Shirley, Franklin & Bristol, Sullivan County, Atlantic & St. Lawrence, Manchester & Lawrence, Cochecho (now Dover & Winnipiseogee), Concord & Claremont, Contoocook Valley, N. H. Central, and White Mountains, nearly all of which were completed during the years 1848 to 1853.

Next follows a term of fifteen years in which scarcely any railroad building was done in this State, extending to 1868. The eight years since that time may be called the second era of railroad building in New-Hampshire, during which important extensions have been made to the White Mountains Railroad, now united with the Boston, Concord & Montreal; the Concord & Claremont (N. H.) and Portsmouth, Great Falls & Conway railroads have been completed; and many new roads have been built, including the Mt. Washington Railway, the Portland & Ogdensburg, Portland & Rochester, Nashua & Rochester, Nashua, Acton & Boston, Suncook Valley, Wolfeborough, Portsmouth & Dover, West Amesbury Branch, Peterborough, and Monadnock, and at the present time that portion of the Manchester & Keene Railroad, which lies between Greenfield and Keene, is in process of construction.

The total length of railroads in New-Hampshire in 1842, was 91 miles; in 1850, 488 miles; in 1853, at the close of the first era of railroad building, 655 miles; in 1860, this remained the same; in 1870, 690 miles; at the present time, in 1876, 943 miles.

The most important thoroughfares of trade and travel, which cross New Hampshire, start from Boston or Portland, connecting them with the St. Lawrence Valley and the West. One of the most important routes between Boston and the West, is by way of the Boston and Lowell, Nashua & Lowell, Concord, Northern, and Central Vermont railroads, passing north of Lake Champlain; another important route is over the Fitchburg and Cheshire railroads, through Rutland, Vt. Portland, Maine, with one of the finest harbors in the United States, is connected with Boston by the Eastern and Boston & Maine railroads; with the south west by the line composed of the Portland & Rochester, Nashua & Rochester, and Worcester & Nashua railroads; with the White Mountains and the West, by the Portland and Ogdensburg; and with the Province of Quebec and the West, by the Grand Trunk Railway.

The routes which receive their largest returns from summer tourists are the Boston, Concord and Montreal, the Portsmouth, Great Falls and Conway, and the Portland and Ogdensburg. The attraction of our scenery also brings increased receipts to nearly every railroad in the State. Another source of income from northern New Hampshire is the freighting of lumber, which before the building of railroads was not worth the cost of getting it to a purchaser.

Many of the railroads of this State are not now operated by the same corporations under which they were built. The Atlantic and St. Lawrence, extending from Portland to Island Pond, Vt., was leased soon after its completion, Aug. 5, 1853, to the Grand Trunk Railway, for a term of 999 years. In September, 1874, this railway from Montreal to Portland, 291 miles, was changed from the broad track of 5 feet 6 inches to the prevailing American guage of 4 feet 8½ inches, which completed the narrowing of their whole line, 1377 miles in length. Sixty new narrow guage engines were placed upon the road, and the other rolling stock was altered to the same guage. When this railway was built, it was confidently believed that its broad guage would be finally adopted throughout the whole country.

The White Mountains Railroad, incorporated Dec. 25th, 1848, and opened from Wells River to Littleton in 1853, has been united with the Boston, Concord & Montreal Railroad, which was extended in August, 1872, to a junction with the Grand Trunk at Groveton, with a branch opened July 1st, 1874, to the Fabyan House, and in June, 1876, to the base of the Mt. Washington Railway.

The Franklin & Bristol Railroad, shortly after its completion, was united with the Northern Railroad, Jan. 31, 1849.

The present Concord & Claremont (N. H.) corporation was formed in 1873, by the union of the old Concord & Claremont, incorporated June 24th, 1848, extending from Concord to Bradford, the Sugar River, incorporated July 7th, 1866, extending from Bradford to Claremont Junction, and the Contoocook Valley, incorporated June 24, 1848, which is now the Hillsborough Branch.

The Manchester and North Weare railroad, was built in 1850, under the title of New-Hampshire Central, and originally extended to Henniker. The portion between this place and North Weare was taken up Oct. 31st, 1858. The present company was incorporated in 1859, and purchased the N. H. Central Railroad, June 10th, 1859.

The Concord & Portsmouth Railroad was first built in 1852 from Concord to Ports-

mouth, running east of Manchester, but in November, 1861, was discontinued from Candia to Suncook, and extended by a new route into Manchester. At the same time a two mile branch was built by the Concord Railroad from Hooksett to Suncook, making two lines between Hooksett and Concord.

The Peterborough & Shirley Railroad, incorporated in 1846, and completed in 1850, was sold to the Fitchburg Railroad Co., Mar. 24, 1860.

The Eastern Railroad was built by separate companies in New Hampshire and Massachusetts, and at its completion in 1840 the portion in this State was leased for 99 years to the Massachusetts company.

The railroad corporations which operate roads in New Hampshire under lease or contract are shown in the annexed Statistical table.

The southeastern portion of the State presents the most favorable ground for railway construction in New-Hampshire. In crossing the high land between Merrimack and Connecticut rivers, and among the mountains and in the northern part of the State, the natural obstacles often require steep grades and sharp curves, greatly increasing the cost of running trains and keeping the roads in repair. The maximum grade on the Nashua & Lowell is 13 feet to a mile; on the Concord, 16; on the Northern, 50; on the Boston & Maine, 47.5; Worcester and Nashua, 49.6; Cheshire, 59.7; Boston, Concord & Montreal, 80, excepting on Mt. Washington Branch between the Fabyan House and the foot of the mountain railway, where much steeper grades have been employed, reaching for the last two miles to 290 feet per mile; on the Portland & Ogdensburg, to trains going east, 80 feet per mile, to trains going west, 116 feet per mile for seven miles through the White Mountain Notch; on the Grand Trunk, 66 feet to the mile.

The three last mentioned roads, which pass through the most mountainous portions of New Hampshire, lie in large part over alluvium brought down and deposited by the streams, and have no more rock excavation than that on portions of several other roads in the State, as the Northern, Concord & Claremont (N. H.) and Cheshire. Through the White Mountain Notch, a very narrow defile with steep mountain walls on each side, the railroad, to make a gradual ascent, has been built for several miles high up on the side of the valley, being at the Willey House 300 feet above the stream, yet even here there was much less of rock work than had been estimated, and an abundance of the best quality of gravel for ballast was found along the whole distance.

MT. WASHINGTON RAILWAY.

On this mountain railroad the locomotive engine is adapted to surmount the steepest gradients. A charter for this road was granted in 1858, but building was not commenced till May, 1866. One fourth mile was completed and a very satisfactory trial of the engine took place Aug. 29, 1866. The road was formally opened to the public Aug. 14, 1868, extending as far as to Jacob's Ladder. It was completed in July, 1869. Its length is two miles and thirteen sixteenths, ascending 3,625 feet, making the average grade 1,290 feet to the mile. The maximum grade is 1980 feet to a mile, or 37.5 feet in 100. There are nine curves, of radius varying from 497 to 945 feet.

The indispensible peculiarity of this railway is its central cog-rail, which consists of two pieces of wrought angle iron, 3 inches wide and ⅜ inch thick, placed upon their edges parallel to each other, and connected by strong iron pins 1½ inches in diameter and 4 inches apart from center to center. The teeth of the driving wheel of the engine play into the spaces between the bolts, and as it revolves the whole engine is made to move, resting on the outer rails. These are 4 feet 7 inches apart. For stopping trains and controlling their descent, both friction and atmospheric brakes are employed, and their complete reliability has been proved by the severest tests. The engines weigh about 6½ tons and are rated at 50 horse power, but by their gearing this power is greatly increased at the expense of speed, which is two miles an hour. The engine always takes the downhill end of the train, which usually consists of locomotive, tender, and one car accommodating about fifty passengers.

The peculiar form of locomotive, cog-rail, and brakes used here, were the invention of Mr. Sylvester Marsh of Littleton, who commenced the work of building the railway, relying chiefly upon his own private resources, and little encouragement was afforded by capitalists till an engine was actually running over a portion of the route. During the construction of this road, it was visited by a Swiss engineer, who took away drawings, &c., of the machinery and track, from which a similar railway has been since built on Mt. Rhigi in Switzerland.

HEIGHTS DETERMINED BY RAILROAD SURVEYS IN NEW HAMPSHIRE.

The following heights, referring to the track at stations or at summits on the line of railway, show the total grades overcome by most of the roads in the State.

Boston & Maine,	Distance from Boston.	Height above sea.
Atkinson,	30.7 miles,	57 feet,
Newton Summit,	42.9 "	142 "
Exeter,	50.4 "	58 "
Newmarket Junction,	55.7 "	52 "
Madbury Summit,	03.8 "	116 "
Dover,	67.6 "	72 "
Salmon Falls,	7t.0 "	107 "
Portamouth, Great Falls & Conway,	Distance from Portsmouth.	
Great Falls,	16.5 "	178 feet,
Summit at Wakefield Sta.,	42.5 "	690 "
West Ossipee,	64.7 "	428 "
Summit,	71.3 "	516 "
Conway,	70.6 "	466 "
Wolfeborough R. R.		
Wolfeborough Junction,	41 miles from Portsmouth.	574 "
Summit,		664 "
Winnipiseogee lake,		560 "
Nashua & Rochester,	Distance from Nashua.	Height above sea
Hudson Summit,	3.8 miles.	262 feet,
Beaver Brook,	5.3 "	172 "
Windham Summit,	9.8 "	345 "
Windham Junction,	10.3 "	324 "
Epping "	28.2 "	154 "
Barrington,	41.9 "	207 "
Rochester,	48.3 "	226 "
Concord & Portsmouth,	Distance from Portsmouth.	
Raymond,	23 miles,	198 feet,
Candia,	29 "	445 "
Concord R. R.	Distance from Boston.	
Nashua,	39 miles,	122.41 feet,
Manchester,	56 "	180.83 "
Hooksett,	66 "	205.39 "
Concord,	74 "	252.39 "
Suncook Valley,	Distance from Hooksett.	
Pittsfield,	19.5 miles,	493 feet
Wilton & Peterborough railroads.	Distance from Boston.	
Nashua,	39.5 miles,	134 feet,
Wilton,	55 "	328 "
Greenfield,	65 "	810 "
Manchester & North Weare,		
North Weare,	19 miles from Manchester,	489 feet,
Concord & Claremont (N. H.)	Distance from Concord.	
Contoocook,	12 miles,	373 feet,
Hillsboro' Bridge (end of branch.)	27 "	574 "
Bradford,	27.5 "	670 "
Newbury Summit,	33	1130 "
Newport,	43 "	802 "
Claremont,	54 "	543 "
Claremont Junction,	56 "	473 "
Monadnock R. R.		
Winchendon,		992 feet,
Summit in Rindge,		1127 "
East Jaffrey,		1032 "
Peterborough,		744 "
Cheshire R. R.	Distance from So. Ashburnham.	
So. Ashburnham Junc.,	61 miles from Boston,	1014 feet
Fitzwilliam Summit,	18.4 miles,	1151 "
Keene,	31.3 "	479 "
Surry Summit,	38.3 "	830 "
Bellows Falls,	53.6 "	304 "
Sullivan County R. R.	Distance from Bellows Falls.	
Charlestown,	8 miles,	375 feat,
Summit, ¼ mile north from Claremont Junction,	18 "	478 "
Windsor,	25.5 "	331 "
Northern R. R.	Distance from Concord.	
Franklin,	19 miles,	363 feet,
Bristol, (end of branch)	32 "	369 "
Andover,	29 "	628 "
Danbury,	38 "	826 "
Orange Summit,	48 "	990 "
Enfield,	58 "	768 "
Lebanon,	04 "	510 "
White River Junction,	09 "	369 "
Boston, Concord & Montreal,	Distance from Concord.	
Tilton,	18 miles,	458 feet,
Ashland Summit,	43 "	679 "
Plymouth,	51 "	490 "
Warren Summit,	75 "	1083 "
Wells River,	93 "	443 "
Littleton,	113 "	817 "
Wing Road Junction,	120 "	1019 "
Lancaster,	134 "	870 "
Twin Mt. Station,	129 "	1375 "
Fabyan House,	134 "	1571 "
Ammonoosuc Station at base of Mt. Washington Ry.	140 "	2068 "
Summit of Mt. Washington,	143 "	6293 "
Portland & Ogdensburg,	Distance from Portland.	
North Conway,	60 miles,	521 feet,
Upper Bartlett,	70.5 "	660 "
Summit near Crawford House,	85 "	1893 "
Connecticut river, Dalton,	109 "	830 "
Grand Trunk Railway,	Distance from Portland.	
Line between Maine & N. H.	82 miles,	713 feet,
Gorham,	91 "	812 "
Milan Summit,	102 "	1087 "
Groveton Junction,	122 "	901 "
North Stratford,	134 "	915 "
Summit, highest between Portland and Montreal,	156 "	1385 "

STATISTICS OF RAILROADS IN NEW HAMPSHIRE, 1876.

NAMES AND TERMINI.	Total length in miles	Length in N. H. in miles	Date of Incorporation.	Date of completion.	Cost of Road & Equipments to 1875.	Annual Receipts, 1875.	Annual Expenditures, 1875.	Leased to.	OFFICERS. Presidents, Superintendents and Treasurers.
Ashuelot. Keene to So. Vernon, Vt.	23.75	23.	Dec. 27, 1844.	Jan., 1851.	$ 500,000.00	$ 48,397.15	41,019.79	Cheshire.	Same as Cheshire.
Boston & Maine. Boston, Mass., to Portland, Maine.	115.51	34.75	June 27, 1835.	To Dover, Sept. 27, 1841.	10,646,836.03	2,388,740.18	1,522,561.77		Pres., N. G. White, Boston. Supt., J. T. Furber, " Treas., A. Blanchard, "
Boston, Concord & Montreal. Concord to Groveton, 145 m., Wing Rd. Jun. to base of Mt. W. Ry. 21 m.	166.	166.	Dec. 25, 1844.	To San. Bridge (Tilton), 1848, To Plymouth, 1850, To Wells River, 1853.	3,940,000.00	693,354.97	511,342.64	White Mts. R. R. purch'ed by B. C. & M., Ap'l 1, 1873.	Pres., J. E. Lyon, Boston. Supt., J. A. Dodge, Plymouth. Treas., E. D. Harlow, Boston.
Cheshire. South Ashburnham, Mass., to Bellows Falls, Vt.	53.62	42.81	Dec. 27, 1844.	To Keene, May 16, 1848, To Bellows Falls, Jan. 1, 1849.	2,689,307.66	656,264.70	635,444.84		Pres., E. Murdock, Jr., Winchendon, Ms. Supt., R. Stewart, Keene. Treas., F. W. Everett, Boston.
Concord. Nashua to Concord, 35 m., Hooksett to Suncook, 2 m.	37.	37.	June 27, 1835.	Sept. 1, 1842.	1,500,000.00	950,358.45	675,059.97		Pres., O. Stearns, Concord. Supt., H. E. Chamberlin, Concord. Treas., N. Parker, Manchester.
Concord & Claremont (N. H.) Concord to Claremont Junction, 56 m., Contoocook to Hillsboro Bridge, 15 m.	71.	71.	Present corporation formed, 1873.	To Bradford, July 10, 1850, To Cl. Junc., Sept., 1872, To Hills. Bridge, Dec., 1849.		162,848.86	122,169.13		Same as Northern.
Concord & Portsmouth. Portsmouth to Manchester, 41 m., Suncook to Concord, 7 m.	48.	48.	July 1, 1845.	To Raymond Sept. 9, 1850, To Concord, 1852, To Manchester, Nov., 1861.		Inclu'd with	Concord.	Concord, 1882, for 99 years.	Pres., S. Kendrick, Franklin. Treas., M. Currier, Manchester.
Dover & Winnipiseogee. Dover to Alton Bay.	28.50	28.50	Cocheco, July 2, 1847, D. & W. July 1, 1862.	To Farmington, Sept. 21, 1849, To Alton Bay, 1852.	480,000.00	Inclu'd with	Bost'n & Me.	Boston & Maine, Dec. 1, 1863, for 50 years.	Pres., W. Hale, Dover. Treas., G. W. Bonn, Dover.
Eastern. Boston, Mass., to Portland, Maine.	108.	16.53	June 18, 1836.	Nov. 1840.	15,097,814.03	2,787,143.25	2,045,040.54	Eastern in Mass., Feb. 18, 1840, for 99 years.	Pres., I. Goodwin, Portsmouth. Supt., C. F. Hatch, Boston. Treas., J. B. Parker, Salem, Mass.
Fitchburg. PETERBOROUGH & SHIRLEY BRANCH, Ayer Junction, Mass., to Greenville.	23.	9.37	P. & S. R. R., July 8, 1846.	P. & S. R. R., Nov. 11, 1850.	4,228,641.20	1,720,524.71	1,432,700.70	United with Fitchburg, Mar. 24, 1860.	Pres., W. B. Stearns, Boston. Supt., C. L. Heywood, " Treas., M. D. Benson, "
Grand Trunk. ATLANTIC & ST. LAWRENCE DIVISION, Portland, Maine, to Island Pond, Vt.	149.	52.	June 30, 1847.	Feb. 8, 1853.	8,484,000.00	1,247,246.84	1,185,479.91	Grand Trunk, Aug. 5, 1853, for 999 years.	Pres., J. B. Brown, Portland, Me. Supt., J. Hickson, Montreal. Treas., C. E. Barrett, Portland.
Manchester & Lawrence. Manchester to Lawrence, Mass.	26.	22.39	June 30, 1847.	Nov. 13, 1849.	1,000,000.00	179,246.28	78,559.61		Pres., E. A. Straw, Manchester. Supt., J. W. Hildreth, Concord. Treas., G. B. Chandler, Manchester.
Manchester & North Weare. Manchester to North Weare.	19.	19.	N.H. C'l. June 24, 1848 M. & N. W., 1859.	Dec. 10, 1850.		Inclu'd with	Concord.	Owned and operated by Concord R. R.	Pres., P. Adams, Manchester. Treas., J. Carpenter, Pittsfield.
Monadnock. Winchendon, Mass., to Peterborough.	16.	14.	Dec. 13, 1848; Revived July 6, 1866.	June, 1871.	385,518.68	20,306.75	22,202.37	Boston, Barre & Gardiner, Oct. 1, 1874, for 99 ys.	Pres., J. Livingston, Peterborough. Treas., C. A. Parks, Jaffrey.
Mt. Washington. Ammonoosuc Station, or Base, to Summit of Mt. Washington.	2.81	2.81	June 25, 1858.	July, 1869.	120,000.00	23,536.15	16,618.36		Pres., S. Marsh, Littleton. Treas., J. E. Lyon, Boston.
Nashua, Acton, & Boston. Nashua to North Acton, Mass.	20.21	4.75	June 27, 1872.	July 1, 1873.	1,043,481.05	34,275.42	44,145.60	Concord, Jan. 1, 1876, for 10 ys.	Pres., P. B. Brigham, Boston. Treas., F. D. Cook, Nashua.
Nashua & Lowell. Nashua to Lowell, Mass.	14.	5.25	June 23, 1835.	Dec. 25, 1838.	950,000.00	504,259.55	500,221.23		Pres., F. B. Crowninshield, Boston. Supt., W. M. Parker, " Treas., T. H. Wood, Nashua.
Nashua & Rochester. Nashua to Rochester.	49.	49.	June 24, 1868.	Nov. 24, 1874.	1,702,473.63			Worc. & Nash., 1874, for 50 ys.	Same as Worcester & Nashua.
Northern. Concord to White River Junction, 69½ m., Franklin to Bristol, 13 m.	82.50	82.50	June 18, 1844; F. & B., R.R. July 8, 1846	To Franklin, Dec. 28, 1846, To W. R. Junc., 1848. To Bristol, 1848.	3,068,400.00	503,984.86	408,734.92	F. & B. R. R. united with North'n Jan. 31, 1849.	Pres., O. Stearns, Concord. Supt., G. E. Todd, " Treas., J. Minot, "
Peterborough. Wilton to Greenfield.	11.	11.	July 7, 1866.	Jan. 1, 1874.	568,700.00	Inclu'd with	Nas. & Low'l	Nash. & Lowell, Apr. 1, 1873, for 20 years.	Pres., J. Scott, Peterborough. Supt., W. M. Parker, Boston. Treas., T. H. Wood, Nashua.
Portsmouth & Dover. Portsmouth to Dover.	11.	11.	July 7, 1866.	Feb. 1, 1874.		Inclu'd with	Eastern.	Eastern, for 50 years.	Pres., F. Jones, Portsmouth. Treas., G. L. Treadwell, Portsmouth.
Ports., Great Falls & Conway. Conway Junction, South Berwick, Maine, to North Conway.	72.20	69.20	Gt.F.&C. June 10, 1844 P.Gt.F.&C. June 30, '65	To Rochester, March, 1849, To Union Village, 1855, To No. Conway June 24, 1872.	2,000,000.00	175,729.57	150,395.12	Eastern, 1871, for 68 years.	Same as Eastern.
Portland & Ogdensburg. Portland, Maine, to Fabyan House.	89.	38.	July 6, 1867.	To Fabyan House, Aug. 7, 1875.	3,024,736.88	226,150.25	122,103.43		Pres., S. J. Anderson, Portland, Me. Supt., J. Hamilton, " " Treas., W. H. Anderson, " "
Portland & Rochester. Portland, Maine, to Rochester.	52.50	3.	July 2, 1866.	July 31, 1871.	1,931,420.47	159,731.17	120,271.10		Pres., G. P. Wescott, Portland, Me. Supt., J. M. Lunt, " " Treas., W. H. Conant, " "
Sullivan County. Bellows Falls, Vt., to Windsor, Vt.	26.	25.50	July 10, 1846.	Feb. 5, 1849.		Under Cont'l	Vermont.	Operated by Central Vt. R. R.	Same as Northern
Suncook Valley. Suncook to Pittsfield.	18.	18.	July 1, 1863.	Dec. 6, 1869.	341,700.00	Inclu'd with	Concord.	Concord, March 11, 1870, for 42 years.	Pres., S. N. Bell, Manchester. Treas., J. A. Weston, "
West Amesbury Branch. Newton to Merrimack, Mass., (formerly West Amesbury).	4.50	2.25	June 30, 1868.	Jan. 9, 1874.	122,958.70	Inclu'd with	Bost'n & Me.	Boston & Maine, Apr. 1, 1874, for 99 years.	Pres., W. H. Haskell, Merrimack, Mass. Treas., J. S. Poyen, " "
Wilton. Nashua to Wilton.	15.50	15.50	Dec. 28, 1844.	To Danf. Cor. (Amherst), Nov. 1, 1848, To Wilton, 1851.	234,600.00	Inclu'd with	Nas. & Low'l	Nash. & Lowell, Apr. 1, 1873, for 20 years.	Pres., C. C. Boutwell, Nashua. Supt., W. M. Parker, Boston. Treas., T. H. Wood, Nashua.
Wolfeborough. Wolfeborough Junction, Wakefield, to Wolfeborough.	12.	12.	July 1, 1868.	Aug. 19, 1872.	300,000.00	Inclu'd with	Eastern.	Eastern, Jan. 6, 1872, for 68 ys.	Same as Eastern.
Worcester & Nashua. Worcester, Mass., to Nashua.	45.69	6.36	June 26, 1845.	Dec. 18, 1848.	2,472,140.16	494,409.53	336,079.21		Pres., F. H. Kinnicutt, Worcester, Mass. Supt., C. S. Turner, " " Treas., T. W. Hammond, " "

The above Statistics of Total Cost and of Receipts and Expenditures, are derived from the reports of the Railroad Commissioners of New Hampshire, and refer to the entire roads, of which, in several cases, only a part is in this State.

EDUCATIONAL INSTITUTIONS.

STATISTICS OF PUBLIC SCHOOLS.

From the Annual Report of the Superintendent of Public Instruction, for 1875.

By J. W. SIMONDS.

	Belknap.	Carroll.	Cheshire.	Coos.	Grafton.	Hillsboro'.	Merrimack.	Rockingham.	Strafford.	Sullivan.
TOWNS.										
Towns having organized schools	11	18	23	20	38	31	27	38	13	15
DISTRICTS.										
Legally organized school districts	135	195	230	151	375	246	298	217	120	161
Organized under special act	1	None.	2	1	7	1	11	2	3	3
SCHOOLS.										
Different public schools	160	196	251	153	407	366	300	358	185	173
Schools graded	10	2	50	11	36	103	68	37	60	20
Town high schools	1	1	3	None	None.	4	2	3	2	2
District high schools	1	None.	4	2	3	1	2	3	3	1
Schools averaging six scholars or less	14	10	20	10	46	32	45	13	9	27
Average length of all the schools in weeks of five days	10.76	15.25	10.83	16.88	10.40	22.14	18.94	24.30	21.39	18.15
SCHOLARS.										
Boys attending two weeks or more	1,768	2,410	3,382	2,073	4,020	6,496	4,717	5,112	3,812	1,996
Girls attending two weeks or more	1,509	1,851	2,953	1,846	4,275	6,102	4,337	4,884	3,277	1,753
Average attendance of all the schools.	2,174	3,206	4,288	2,671	6,620	8,316	6,304	7,227	4,723	2,625
Number scholars reported attending private schools, and not registered	120	78	123	40	226	2,060	154	824	133	84
Number of children reported between the ages of five and fifteen years not attending any school	328	312	115	250	607	611	497	280	414	450
Scholars reported attending the higher branches	404	260	495	174	501	1,156	732	640	531	239
TEACHERS.										
Male teachers	27	61	39	36	60	62	71	54	52	41
Female teachers	186	179	329	105	526	514	445	338	229	225
Average wages of male teachers per month, including board.	$ 44.50	$ 28.50	$ 43.14	$ 38.80	$ 35.21	$ 52.40	$ 40.44	$ 50.60	$ 51.25	$ 35.21
Average wages of female teachers per month, including board	$ 25.80	$ 22.72	$ 27.84	$ 22.88	$ 23.22	$ 27.38	$ 24.06	$ 30.54	$ 28.85	$ 21.22
SCHOOL HOUSES.										
School houses	137	177	231	137	373	201	318	244	145	170
Reported unfit for school purposes	27	32	40	28	90	30	67	23	17	31
Not used the past year	3	6	4	4	0	7	9	8	2	6
Built	1	None.	2	4	3	7	2	5	1	None.
Number that have a globe or outline maps	30	13	88	4	79	125	92	136	44	38
Estimated real value of school buildings, furniture and sites.	$ 87,360	$ 47,700	$ 170,000	$ 46,800	$ 213,805	$ 655,500	$ 302,260	$ 344,300	$ 283,600	$ 70,650
Estimated value of school apparatus	$ 790	$ 440	$ 2,275	$ 341	$ 1,800	$ 11,541	$ 2,900	$ 5,235	$ 3,142	$ 780
REVENUE.										
Raised by town taxes	$ 14,419	$ 15,581	$ 37,730	$ 15,100	$ 42,200	$ 155,428	$ 63,358	$ 69,320	$ 4,564	$ 20,117
Raised by district taxes	$ 705	$ 659	$ 10,138	$ 1,416	$ 7,930	$ 11,778	$ 11,680	$ 6,197	$ 7,508	$ 2,728
Literary fund	$ 1,411	$ 1,877	$ 2,650	$ 1,821	$ 3,751	$ 3,624	$ 3,780	$ 3,906	$ 2,911	$ 1,516
Local funds	$ 397	$ 1,457	$ 1,218	$ 113	$ 1,482	$ 633	$ 2,460	$ 15,199	$ 1,857	$ 642
Railroad tax set apart for schools	$ 342	None.	$ 130	$ 84	$ 1,459	$ 110	$ 848	$ 1,300	$ 1,974	$ 73
Dog tax and contributed by individuals	$ 1,319	$ 2,231	$ 1,901	$ 3,501	$ 4,962	$ 2,396	$ 3,778	$ 2,357	$ 1,602	$ 1,346
Entire amount of revenue	$ 18,152	$ 21,800	$ 53,402	$ 21,180	$ 61,790	$ 176,981	$ 85,346	$ 98,104	$ 58,378	$ 20,507
EXPENDITURES.										
New buildings	$ 554	None.	$ 3,000	$ 2,637	$ 4,916	$ 116,840	$ 40,600	$ 26,157	$ 22,359	$ 460
Permanent repairs	$ 625	$ 1,013	$ 5,026	$ 1,610	$ 2,658	$ 9,056	$ 1,225	$ 7,717	$ 3,420	$ 2,320
Miscellaneous expenses	$ 1,288	$ 1,752	$ 9,875	$ 858	$ 5,398	$ 23,780	$ 8,100	$ 17,205	$ 10,150	$ 3,380
Teachers' salaries, including board	$ 17,805	$ 18,860	$ 30,873	$ 18,105	$ 40,100	$ 103,040	$ 46,252	$ 73,872	$ 44,109	$ 19,186
Total expended	$ 20,642	$ 20,279	$ 54,713	$ 22,780	$ 57,968	$ 249,320	$ 85,714	$ 165,003	$ 86,329	$ 20,016
Average cost per scholar, (for miscellaneous and salaries)	$ 5.82	$ 4.82	$ 7.22	$ 4.58	$ 5.67	$ 10.02	$ 6.00	$ 9.11	$ 8.23	$ 6.20

DARTMOUTH COLLEGE.

BY PRESIDENT ASA D. SMITH, D. D. L.L. D.

DARTMOUTH College, the fourth of the New England colleges in chronological order,—preceded, in that respect, only by Harvard, Yale and Brown—sprung from a noteworthy germ of Christian philanthropy. It was an offshoot of Moor's charity-school, an institution for the education of Indian youth, established in Lebanon, Conn., in the year 1754. The school was subsequently removed to Hanover, N. H., a charter for a college, to be connected with it and yet a distinct institution, having been previously obtained. This charter was issued Dec. 13, 1769, by the Hon. John Wentworth, the last of the royal governors of the Province of New Hampshire. The founder of the charity school was named in it as the first President of the college; and, in view of the interest taken in the school by Lord Dartmouth, an excellent English nobleman, and of his benefactions to it, his name was appropriately given to the college. We smile at the enthusiasm with which the location finally selected was spoken of by its friends. "The other colleges," said one of them, "are all situated along the seashore, on the verge of the country; this, in the very heart of it: they, as to their location, are like the sun in the horizon; this like that bright luminary flaming in the meridian." Yet we may safely say, that the site of the institution, though a wilderness at first, and sorely trying to the faith and patience of Pres. Wheelock and his coadjutors, has since proved itself, in the quietness favorable to study, in the comparative absence of temptation, in the salubrity of the climate, and the picturesqueness of the surrounding scenery, admirably adapted to its purpose.

One of the most signal events in the history of the institution is the controversy, out of which arose the famous Dartmouth College case. The legislature of New Hampshire, influenced by considerations which need not here be detailed, claimed the right to "amend" the royal charter. They passed an act to that effect, in 1816, changing the name of the institution to "Dartmouth University," and embracing other important modifications. To this act the Trustees were opposed; and, with the design of testing its

constitutionality, they brought an action before the Supreme Court of the State. By this tribunal the legislature was sustained; and an appeal was taken by the trustees to the Supreme Court of the United States, John Marshall being then Chief Justice. The cause of the college was there argued by Daniel Webster, and other able counsel, and fully sustained by the court. The university organization was dissolved, and the old college board went on their way rejoicing. This great battle was fought by them not for themselves only; the principles concerned were vital to many other institutions of learning. It is certainly to the praise of Dartmouth, that, in comparative poverty and alone, she was thus instrumental in vindicating and establishing the sacredness of private eleemosynary trusts. To this category, in the judgment of the court, the institution belonged. A contract, they held, was involved; and no State might pass a law "impairing the obligation of contracts."

With such occasional ebbs and eddies as pertain to all like institutions, but with remarkable steadiness on the whole, the college has gone onward from its small beginnings to its present condition of enlargement and prosperity. The whole number of its alumni, including all the departments, is five thousand four hundred and eighty nine. These have come from all parts of the land; and, as graduates, have been scattered as widely. While a considerable number have entered from the cities and large towns, the great majority have come from rural places. The average age of admission has been some what above that at many other colleges; and to the maturity thus secured has been added, in many cases, the stimulus of self-dependence. From these and other causes, Dartmouth students, as a class, have been characterized by a spirit of earnestness, energy, and general manliness, of the happiest omen as to their life work. Most of them have gone, not into the more lucrative line of business, but into what may be called the working professions. To the ministry, the college has given more than one thousand of her sons. Dr. Chapman says, in his "Sketches of the Alumni," published in 1867: "There have been thirty-one judges of the United States and State Supreme Courts; fifteen senators in Congress; and sixty-one representatives; two United States cabinet ministers; four ambassadors to foreign courts; one postmaster general; fourteen governors of States, and one of a Territory; twenty-five presidents of colleges; one hundred and four professors of academical, medical, or theological colleges." Perhaps the two professions that have drawn most largely upon the institution have been those of teaching and the law. We recall a single class, that of 1828, one-fourth of whose members have been either college presidents or professors. Dr. Chapman states, that at one time there were residing in Boston, Mass., no less than seven sons of the college, "who were justly regarded as ranking among the brighest luminaries of the law. They were Samuel Sumner Wilde, 1789; Daniel Webster, 1801; Richard Fletcher, 1806; Joseph Bell, 1807; Joel Parker, 1811; Rufus Choate, 1819; and Charles Bishop Goodrich, 1822."

As might have been expected from the origin of the institution, it has aimed, from the beginning, at a high religious tone. Neither its trustees nor its faculty believe in divorcing the moral nature from the intellectual, in the process of education. But a partial and perilous culture is that, they judge, which leaves untouched the chief spring and crowning glory of our being. Yet the institution is not sectarian, but truly catholic, in its spirit. What is commonly called the evangelical faith has, indeed, chief influence in its halls; yet students of all denominations are not only welcomed there, but have the utmost freedom of opinion and of worship, and their views are treated with all proper delicacy and respect. Most of the trustees and instructors are of the Orthodox-Congregational connection; but there is in the charter no restriction in this respect, and at least three other denominations are at present represented in the faculty. There is a weekly biblical exercise of all the classes; in which, while the fundamentals of Christianity are inculcated, minor denominational points are avoided.

While Dartmouth has no pet system of metaphysics, its teachings lean, in general, to what may be called the spiritual line of thinking. The college has, in time past, through some of its gifted sons, rendered a service to sound philosophy, which is not, perhaps, generally known. Half a century ago, it will be remembered, the system of Locke and his school, as well in this country as in Europe, was in the ascendant. It was so, to some extent, at Dartmouth. There were in college, however, about that time, a number of earnest, thoughtful men, fond of metaphysical inquiries, and not altogether content with the cast of opinion most in favor. Among them—not to name others—were Dr. James Marsh, Prof. Joseph Torrey, Dr. Joseph Tracy, and Dr. John Wheeler. Dr. Marsh, while an undergraduate, had fallen upon the very course of thought which was so fully carried out in his subsequent teachings and writings. The discussions begun at Dartmouth were transferred to Andover, and thence to other quarters. In 1829, Dr. Marsh gave to the American public Coleridge's "Aids to Reflection," with an able preliminary essay by himself. An admirable series of articles on "Christian Philosophy," advocating the same general views, was subsequently published by Dr. Joseph Tracy. And the other men named above were variously co-workers in the movement —a movement which contributed largely to the bringing in of that higher style of philosophy which has since been so prevalent in our country.

Dartmouth has aimed, in all her history, at that true conservatism which blends felicitously the "old and new." Bound by no inept foreign methods—good enough, it may be, abroad, but out of place here—she holds fast to the old idea of the American college. Its end she judges, is that general and symmetrical training which should precede the particular and professional; which makes the man, to be moulded, in due time, into the clergyman, the lawyer, the physician, or whatever else may be preferred. Yet she welcomes whatever real improvements increasing light has suggested. She believes in a curriculum, carefully devised, suited to develop, by a common discipline, our common humanity; not deeming it wise or safe to leave the selection of studies, wholly or mainly, to youthful inexperience or caprice. Yet she holds such a curriculum subject to all possible emendations, and does not hesitate to incorporate with it, to a limited extent, especially in the more advanced stages, the elective principle; being careful, however, not to interfere with the substantial integrity and wise balance of the programme. She has already a number of options, both as to courses and particular studies. She believes in the ancient classics, but she favors science also. For the last seven years, much more has been expended on the scientific appointments of the institution than on the classical; and other improvements are contemplated in the same direction. Though she adheres to the old college, as has been said, yet around that she has already grouped—though with no ambitious fancy for the name of a university—a number of collateral or post graduate institutions, affering diversified opportunities of general and special culture. The various departments, as they now exist, are as follows:

1. The old Academic Department, with its four years' curriculum, including the privilege of a partial course, and a number of particular options.

2. The Chandler Scientific Department, with a regular course, chronologically parallel to that of the Academic, and having, with the option of a partial course through all the years, several elective lines of study in the last year. Latin and Greek are omitted, French and German included, and scientific branches are made most prominent.

3. The Agricultural Department, so called, or the New Hampshire College of Agriculture and the Mechanic Arts. This is based on the Congressional land-grant. It has a regular three years' course, with an option, after the first year, between an agricultural and mechanical line of study.

4. The Engineering Department, or the Thayer School of Civil Engineering. This is substantially, though not formally, a post graduate or professional department, with a two years' course. The requisites for admission are, in some important branches, even more than a college curriculum commonly embraces; and it is designed to carry the study of civil engineering to the highest point.

5. The Medical Department, or the old New Hampshire Medical College. This was established in 1797, has had a long and prosperous career, and ranks now with the best

medical institutions in the country. There is connected with it, in addition to the lectures, a good course of private medical instruction.

6. MOOR'S CHARITY SCHOOL. This has now no distinct organic existence; but there is a small fund which is appropriated, under the direction of the President of Dartmouth College, to the education of Indian youths, in any department for which they are prepared.

During the late war, the college, in common with most others in our country, was somewhat depressed; but it has since been resuming, and even surpassing, its former *status*. The last catalogue embraces a faculty of instruction, thirty-six in number, and, in all the different courses of study, four hundred and twenty students. As an indication of the national relations of the college, it may be remarked, that these students come from twenty five different States and Territories, at home and abroad; and that, of the undergraduates, more than one fifth are from places out of New-England. Within the last thirteen years, nine hundred and sixty thousand dollars have been secured for the various departments. But with the restrictions imposed on some of the gifts, with the remaining wants of existing foundations, with the plans of enlargement and improvement in the minds of the trustees and faculty, and with the increased number of students, there is a present need of as much more. Nor is it likely that here, any more than at the other leading institutions of our country, there will cease to be a call for additional funds, so long as

"The thoughts of men are widened by the process of the suns."

HIGH SCHOOLS AND ACADEMIES.

Those marked with an asterisk are Public Schools.

Name of School.	Location.	Date of charter	Date of organization.	No. male teachers.	No. female teachers.	Male Students.	Female Students.	Stud'ts residing in N. H.	Pursuing higher br'ch's	Vols. in library.	School year begins.	No. of weeks in year	Valuation of buildings, apparatus and grounds.
Adams Female Seminary	East Derry	1823	1825		3		45	38	25	700	August.	39	$ 0,000
Appleton Academy	New Ipswich	1789	1780	1	2	53	61	91	50	500	August.	30	20,000
Atkinson Academy	Atkinson	1791	1786	1	1	38	25	50	15	400	August.	40	5,000
Austin Academy	Strafford Center	1830	1830	2	1	25	25	49	30		August.	30	3,000
Chesterfield Academy	Chesterfield	1790	1790	1		25	15	40	20		September.	12	1,500
Classical Institute	Milton Three Ponds			1		37	33	95	12		September.	36	1,500
Coe's Northwood Academy	Northwood Center	1867	1860	2	2	23	21	39	29	500	September.	33	2,000
Colebrook Academy	Colebrook	1822	1848		1	95	35	54	33		September.		1,599
Clinton Grove Seminary	Weare		1837	1	3	60	58	101	197		August.	36	5,000
Commercial Academy	Portsmouth		1874	2	3	39	16	50	48		September.	40	
*Concord High School	Concord		1850	1	2	50	115	171	71	450	September.	30	40,000
*Conant High School	Jaffrey		1871	1	2	25	21	40	10		August.	22	400
Contoocook Academy	Contoocookville	1856	1850	1	2	20	20	40	20		August.	36	2,500
Conway Academy	North Conway		1838	2	1	47	35	78	18		September.	30	2,700
Deering Academy	Deering		1863	1		10	12	22	0		September.	10	25
Dearborn Academy	Seabrook	No returns received											
Dartmouth Home School	Hanover		1867		4		39	30	12	125	September.	40	
*Dover High School	Dover		1851	1	2	30	65	95	95	125	August.	38	25,009
*Exeter High School	Exeter			1		35		35	35		September.	37	
Franklin Academy	Dover	1818	1818	1	2	50	30	80	52		August.	40	10,000
*Franklin High School	Franklin		1871	1		14	32	40	31		September.	30	3,000
*Farmington High School	Farmington		1869	1	1	20	30	56	56	50	August.	39	2,500
Francestown Academy	Francestown	1819	1809	1	2	45	39	83	63	300	August.	37	7,000
Freedom High School	Freedom		1870	2	1	00	37	85	50		September.		
Gaskell's Business College	Manchester		1865	2		280	00	201			September.	52	
Gilmanton Academy	Gilmanton	1791	1796	1	3	35	37	01	40	512	August.	36	5,000
Great Falls High School	Great Falls		1849	1	1	21	48	65	18	20	September.	30	10,000
Hancock High School	Hancock		1873	1	1	52	50	108	50		August.	21	
Kearsarge Home School	Scytheville		1874	1							August.		
*Keene High School	Keene			1	1	25	62	87	72		September.	39	50,000
Kimball Union Academy	Meriden	1813	1815	3	3	120	75	100	75	2,000	August.	39	15,009
Kingston Academy	Kingston Plains	1855	1859	1		25	20	45	25		August.		5,000
Lancaster Academy	Lancaster			1	1	48	42	85	75		September.	41	5,000
Lake Village Select School	Lake Village		1869		1	20	20	40	30		September.	40	
*Lebanon High School	Lebanon		1874	1	1	39	21	51	51		September.	30	25,009
*Littleton High School	Littleton		1868	1	1	45	55	95	60		August.	38	35,000
*Manchester High School	Manchester		1842	1	5	111	150	251	252	300	September.	40	50,000
Marlow Academy	Marlow			1		40	29	60	40		August.	24	700
*Milford High School	Milford		1851	1	1	33	52	85	85		September.	30	10,000
McGaw Institute	Reed's Ferry	1849	1849	1		17	12	27	29		August.	38	10,000
*Meredith High School	Meredith		1873	1		20	10	30	30		September.	30	8,000
McCollom Institute	Mont Vernon	1850	1850	2	1	89	57	130	125	1,000	September.	36	10,000
Miss Morgan's Ladies' School	Portsmouth		1874		2		40	40	25		September.	30	15,000
Mt. St. Mary's Academy	Manchester				2		15						39,000
Nashua Literary Institute	Nashua	1840	1840	1	1	100	96	196	102		May.	42	0,000
Nashua High School	Nashua			1	3	55	05	120	120		September.	36	100,000
N. H. Conference Seminary	Tilton	1845	1845	4	4	120	102	200	99	1,500	August.	36	35,000
New Hampton Institution	New Hampton	1853	1853	4	4	181	116	267	208	4,000	August.	40	35,000
New London Institution	New London	1854	1853	4	3	101	82	126	55	1,609	August.	40	80,900
*Newport Grammar School	Newport		1874	1	1	25	40	65	50				0,000
Orford Academy	Orford	1853	1840							800			8,000
Penacook Normal Academy	Fisherville	1866		2	3						September.	40	25,000
Pinkerton Academy	Derry	1816	1815	1	1	00	50	100		350	August.	40	0,000
Phillips Exeter Academy	Exeter	1781	1783	5		166		41	106	310	September.	38	95,000
Proctor Academy	Andover	1874	1874	1	1	43	31	72	35	50	August.	39	10,000
Pembroke Academy	Pembroke	1818	1819	1	2	58	57	113	71	300	August.	39	5,000
*Peterboro' High School	Peterborough		1871	1	1	33	29	62	50		August.	30	2,000
*Portsmouth High School	Portsmouth			1	3	62	01	151	153	850	September.	41	30,000
*Robinson Female Seminary	Exeter		1866	1	8		192	190	65	1,009	September.	30	110,000
Raymond High School	Raymond				1	34	25	59	10				1,000
*Rochester High School	Rochester		1801	1	1	45	25	79	47		September.	36	4,000
State Normal School	Plymouth	1870	1871	1	3	44	113	151	137	225	September.	30	30,009
St. Paul's School	Concord	1855	1850	13		170		4	35	2,000	September.	38	75,000
*Simonds Free High School	Warner		1871	2	1	55	50	105	45	150	August.	39	11,000
*Stevens High School	Claremont		1868	1	2	40	68	100	30	350	September.	39	30,009
Tilden Ladies' Seminary	West Lebanon	1868	1854	1	6		00	25	65	1,100	September.	38	$ 50,000
*Troy High School	Troy		1866		2	38	42	80	30		September.	29	7,000
Van Dame School	Nottingham Center			1		18	10	34	12			12	
Wilton Select School	East Wilton		1873		1	21	31	55	41		September.	32	2,000
*Winchester High School	Winchester		1872	1	1	44	54	96	50		September.	33	
Wolfeborough Academy	Wolfeborough	1820	1821	1							September.	24	5,000

LIST OF

CITIES, TOWNS, POST-OFFICES, R. R. STATIONS AND VILLAGES

IN THE STATE OF

NEW-HAMPSHIRE.

EXPLANATIONS.

The first column contains the name of the place. County Seats are designated by asterisks (*). Money-order Post-Offices have their names in full faced type, as **Ashland P. O.**, **DOVER P. O.**, etc. Cities, in capitals, as **CONCORD.** International Money-order offices have the letters **B. C. G. S.** after **P. O.** in parenthesis, indicating respectively, British, Canadian, German, and Swiss Money-order offices. The second column gives the town, and the third column the county, in which the place is located. If the place is a Railroad Station, the fourth column contains the name of the Railroad. If not a Station, the name of the nearest Railroad Station is given, with the distance in miles. Population of towns is given in the fifth column.

The following is a list of Railroads in the State. The names of some of them are abbreviated in the fourth column, but will be readily recognized.

Ashuelot.
Boston, Concord & Montreal.
Boston, Lowell & Nashua.
Boston & Maine.
Bristol Branch,—Northern.
Cheshire.
Concord.
Concord & Claremont.
Contoocook River.
Dover & Winnepesaukee, Branch of Boston & Maine.
Eastern.
Grand Trunk.
Manchester & Lawrence.
Manchester & North Weare.
Monadnock.
Mount Washington.
Nashua, Acton & Boston.
Nashua & Rochester.
Northern.
Peterborough & Shirley.
Portland & Rochester
Portsmouth, (formerly Concord & Portsmouth.)
Portsmouth & Dover.
Portsmouth, Great Falls & Conway.
Portland & Ogdensburgh.
Sullivan County.
Suncook Valley.
West Amesbury Branch,—Boston & Maine
White Mountains Division,—Boston, Concord & Montreal.
Wilton Extension,—Boston, Lowell & Nashua.
Wolfeborough, Branch of Portsmouth, Great Falls & Conway
Worcester & Nashua.

Name of Place.	*Town.*	*County.*	*How accessible.*	*Pop.*
Acworth P. O.	Acworth,	Sullivan,	Charlestown' 9 miles,	1950
Albany,	Albany.	Carroll,	Madison, 4 miles,	340
Alexandria P. O.	Alexandria,	Grafton,	Bristol, 4 miles,	877
Allenstown P. O., R.R. Sta.	Allenstown,	Merrimack,	Sun. Val. Railroad,	1500
Alstead P. O.	Alstead,	Cheshire,	Bellows Falls, Vt., 4 miles,	1213
Alstead Centre P. O	Alstead,	Cheshire,	Walpole, 6 miles,	
Alton P. O. & R R Sta.	Alton,	Belknap,	B. & M. R R., Dov. & Win. Br.	1769
Alton Bay P. O. & R.R. Sta	Alton,	Belknap,	B. & M. R R., Dov. & Win. Br.	
*Amherst P. O.	Amherst,	Hillsboro',	Amherst Station, 3½ miles,	1353
Amherst Station, (Danforth's Cor.)	Amherst,	Hillsboro',	Boston, Lowell & Nashua, R.R.	
Amoskeag R.R. Station,	Manchester,	Hillsboro',	Concord Railroad,	
Andover P. O., R.R. Station,	Andover,	Merrimack,	Northern Railroad,	1206
Antrim P. O.	Antrim,	Hillsboro',	Hillsborough Bridge, 8 miles,	905
Ashland P. O., R.R. Station,	Ashland,	Grafton,	Bos. Con. & Mont. Railroad,	885
Ashuelot P. O. & R.R. Sta.	Winchester,	Cheshire,	Ashuelot Railroad,	
Atkinson P. O.	Atkinson,	Rockingham,	Atkinson Station, 2 miles,	488
Atkinson Station P. O. R.R. Sta.	Plaistow,	Rockingham,	Boston & Maine Railroad,	
Auburn P. O.	Auburn,	Rockingham,	Auburn Station, 1½ miles,	
Auburn Station,	Auburn,	Rockingham,	Portsmouth Railroad,	821
Barnstead P. O.	Barnstead,	Belknap,	Pittsfield, 3 miles,	1544
Barnstead Centre P. O.	Barnstead,	Belknap,	Pittsfield, 5 miles,	
Barrington P. O.	Barrington,	Strafford,	Barrington Station, 2 miles,	1583
Barrington Station,	Barrington,	Strafford,	N. & R. R R. (E.Barrington P.O.)	
Bartlett P. O.	Bartlett,	Carroll,	Upper Bartlett Sta., P. & O. R.R.	629
Bartlett Centre P. O.	Bartlett,	Carroll,	Glen Station,	
Bath P. O. & R.R. Sta.	Bath,	Grafton,	B. Con. & Mont. Railroad,	1168
Bean's Island,	Candia,	Rockingham,	Candia, 3 miles,	
Bear Camp P. O., R.R. Station,	Ossipee,	Carroll,	Port., Gt. Falls & Con. Railroad,	
Bedford P. O	Bedford.	Hillsboro',	Manchester, 4 miles,	1221
Belmont P. O.	Belmont,	Belknap,	East Tilton, 4 miles,	2185
Bemis' P. O., R.R. Station,	Hart's Loc'n,	Carroll,	Port. & Og'd Railroad,	
Bennett Road R.R. Station,	Newmarket,	Hillsboro',	Bos. & Me. Railroad,	
Bennington P. O.	Bennington,	Hillsboro',	Hillsborough Bridge, 10 miles,	405
Benton P. O.	Benton,	Grafton,	North Haverhill, 7½ miles,	375
Berlin R R. Sta. (Berlin Falls P.O.)	Berlin,	Coos.	Grand Trunk Railroad,	722
Bethlehem P. O.	Bethlehem,	Grafton,	Bethlehem Station, 2 miles,	998
Bethlehem Hollow P. O.	Bethlehem,	Grafton,	Bethlehem Station, 4 miles,	
Bethlehem Station,	Bethlehem,	Grafton,	White Mountain Railroad,	
Blue Hills P. O.	Strafford,	Strafford,	Farmington, 7 miles,	
Boar's Head,	Hampton,	Rockingham,	Hampton, 3½ miles,	
Boscawen P. O., R.R. Station,	Boscawen,	Merrimack,	Northern Railroad,	1637
Bow P. O.	Bow,	Merrimack,	Concord, 5 miles,	745
Bow Mills,	Bow,	Merrimack,	Concord, 4 miles,	
Bow Lake P. O.	Strafford,	Strafford,	Barrington, 9 miles,	
Bowkerville,	Fitzwilliam,	Cheshire,	Troy, 2 miles,	
Bradford P. O., R.R. Station,	Bradford,	Merrimack,	Con. & Clare. Railroad,	1081
Brackett's Station,	Greenland,	Rockingham,	Portsmouth R R.	
Bradford Mills R.R. Station,	Bradford,	Rockingham,	Con. & Clare. Railroad,	
Brentwood P. O.	Brentwood,	Grafton,	Epping, 4 miles,	895
Bridgewater P. O. R.R. Station,	Bridgewater,	Grafton,	Bos., Con. & Mont. Railroad,	465
Brighton,	Croydon,	Sullivan,	Newport, 6 miles,	
Bristol P. O., (B.) R.R. Station,	Bristol,	Grafton,	Nor. Railroad, Bristol Branch,	1416
Brookfield P. O.	Brookfield,	Carroll,	Wolfeborough Junc., 2 miles,	416
Brookline P. O.	Brookline,	Hillsboro',	Pepperell, Mass., 6 miles,	741
Cambridge,	Cambridge,	Coos,	West Milan, 18 miles,	378
Cambridge Hollow,	Lempster,	Sullivan,	Newport, 9 miles,	
Campton P. O.	Campton,	Grafton,	Plymouth, 6 miles,	1226
Campton Village P. O.	Campton,	Grafton,	Plymouth, 9 miles,	
Canaan P. O., R.R. Station,	Canaan,	Grafton,	Northern Railroad,	2877
Candia P. O., R R. Station,	Candia,	Rockingham,	Portsmouth Railroad,	1457
Candia Village P. O.	Candia,	Rockingham,	Candia Station, 1 mile,	
Canterbury P. O.	Canterbury,	Rockingham,	Canterbury Station, 2½ miles,	1169
Canterbury Station,	Canterbury,	Rockingham,	Bos., Con. & Mont. Railroad,	
Carroll R R. Station,	Carroll,	Coos,	White Mountain Railroad,	378
Centre Harbor P. O.	Centre Har.,	Belknap,	Meredith, 4 miles,	515
Centre Sandwich P. O.	Sandwich,	Carroll,	Meredith, 12 miles	

Name of Place.	*Town.*	*County.*	*How accessible.*	*Pop.*
Centre Strafford P. O.	Strafford,	Strafford,	Farmington, 4 miles,	
Chandlerville P. O.	Newbury,	Merrimack,	(Mt. Sunapee Station,)	
Charlestown P. O., R.R. Sta.	Charlestown.	Sullivan,	Sullivan Railroad,	1742
Chatham P. O.	Chatham,	Carroll,	Fryeburg, Me (P. & O.R.R.) 12 m.	415
Chester P. O.	Chester,	Rockingham,	Derry, 6¼ miles,	1153
Chesterfield P. O	Chesterfield,	Cheshire,	Keene, 12 miles,	1289
Chesterfield Factory P. O.	Chesterfield,	Cheshire,	Keene, 9 miles,	
Chichester P. O., R R. Station,	Chichester,	Merrimack,	Sun. Valley Railroad,	872
Chocorua P. O.	Albany,	Carroll,	Madison, 4 miles,	
Cilleyville,	Andover,	Merrimack,	Potter Place, ½ mile.	
Claremont P. O., (B.) R. R. Sta.	Claremont,	Sullivan,	Con. & Clare. Railroad,	4058
Claremont Junction R R. Station,	Claremont,	Sullivan,	Con. & Clare. Railroad,	
Clarksville P. O.	Clarksville,	Coos,	North Stratford, 25 miles,	209
Clark's Corner,	Barnstead,	Belknap,	See South Barnstead,	
Cloughville,	Hopkinton,	Merrimack,	Hopkinton, 2 miles,	
Cold River R.R. Station,	Walpole,	Cheshire,	Cheshire Railroad,	
Colebrook P. O.	Colebrook,	Coos,	N. Stratford, 13½ miles,	2000
Columbia P. O	Columbia,	Coos,	N. Stratford, 12 miles,	752
***CONCORD P. O., (B. C. G. S.)** R. R. Sta.	Concord,	Merrimack,	Concord R. R., Conc. & Clar. R.R., North'n R.R., Bos. Con. & Mo. R.R.	12211
Connecticut Lake P. O.	Pittsburgh,	Coos,	North Stratford, 36 miles,	
Contoocook P. O., R.R. Station,	Hopkinton,	Merrimack,	Con. & Clare. Railroad,	
Conway P. O., R.R. Station,	Conway,	Carroll,	P. & O. R R., Port., G. F. & C. R.	1607
Conway Centre P. O., R.R. Station,	Conway,	Carroll,	Port., Gt. Falls & Con. Railroad,	
Conway Street,	Conway,	Carroll,	Fryeburg, Me., 2 miles,	
Coos P. O. (N. Stratford Station),	Stratford,	Carroll,	Grand Trunk Railway,	
Cornish,	Cornish,	Sullivan,	Claremont, 8 miles,	1334
Cornish Flat P. O.	Cornish,	Sullivan,	Claremont, 10 miles,	
Cotton Valley Station,	Wolfeboro',	Carroll,	Wolfeboro' R. R.	
Crawford House P. O., R.R. Sta.	N.&S. Loct'n,	Coos,	Port. & Og'd Railroad,	
Croydon P. O	Croydon,	Sullivan,	Newport, 7 miles,	652
Croydon Flat P. O.	Croydon,	Sullivan,	Newport, 4 miles,	
Dalton P. O., R.R. Station,	Dalton,	Coos,	White Mountain Railroad,	733
Danbury P. O., R R. Station,	Danbury,	Merrimack,	Northern Railroad,	796
Danforth's Corner, R.R. Station,	Amherst,	Hillsboro',	B., L. & N. R R. (Wilton Br.)	
Danville P. O.	Danville,	Rockingham,	Newton Junction, 4 miles,	648
Davis' Station,	New Durham	Strafford,	Bost. & Me. R.R. Dov. & Win. Br.	
Davisville,	Warner,	Merrimack,	Dimond's Corner, 1 mile,	
Deerfield P. O.	Deerfield,	Rockingham,	Candia, 9 miles,	1768
Deerfield Centre P. C.	Deerfield,	Rockingham,	Candia, 7 miles,	
Deering P. O.	Deering,	Hillsboro',	Hillsborough Bridge, 4 miles,	725
Derry East P. O., R.R. Station,	Derry,	Rockingham,	Nashua & Roch. Railroad,	
Derry Station P. O., R R. Station,	Derry,	Rockingham,	Manch. & Law. Railroad,	
Derry, West, R.R. Station,	Derry,	Rockingham,	Derry Station, 1½ mile,	
Derry P. O.	Derry,	Rockingham	Derry West, 1 mile,	1809
Dimond's Corner, R.R. Station,	Warner,	Merrimack,	Con. & Clare. Railroad,	
Dodge Hollow,	Lempster,	Sullivan,	Newport, 11 miles,	
Dorchester P. O.	Dorchester,	Grafton,	W. Rumney, 6½ miles,	689
***DOVER P.O. (B. C.)** R.R. Sta.	Dover,	Strafford,	Boston & Me. R R., Ports. & Dover R R., Dover & Winna. R R.	9874
Downing's Mills, R.R. Station,	New Durham,	Strafford,	Dov. & Win. Br. B. & M. R R.	
Drewsville P. O.	Walpole,	Cheshire,	Cold River, 3 miles,	
Dublin P. O.	Dublin,	Cheshire,	Keene, 11 miles,	450
Dummer,	Dummer,	Coos,	West Milan, 2 miles,	317
Dunbarton P. O.	Dunbarton,	Merrimack,	East Weare, 3 miles,	778
Durham P. O., R.R. Station,	Durham,	Strafford,	Boston & Maine Railroad,	
East Acworth P. O.	Acworth,	Sullivan,	Charlestown, 11 miles,	
East Alton,	Alton,	Belknap,	Alton, 5 miles,	
East Alstead P. O	Alstead,	Cheshire.	Walpole, 9 miles,	
East Andover P. O., R R. Station,	Andover,	Merrimack,	Northern Railroad,	
East Barrington P. O.	Barrington,	Strafford,	(Barrington Station.) N. & R. R.	
East Canaan P. O., R.R. Station,	Canaan,	Grafton,	Northern Railroad,	
East Columbia.	Columbia,	Coos,	North Stratford, 16 miles,	
East Concord P. O., R.R. Station,	Concord,	Merrimack,	Bos., Con. & Mont. Railroad,	
East Croydon,	Croydon,	Sullivan,	Newport, 7 miles,	
East Deering P. O.	Deering,	Hillsboro'.	Hillsborough Bridge, 5 miles	

Name of Place.	Town.	County.	How accessible.	Pop
East Derry P. O., R.R. Station,	Derry,	Rockingham,	Nash. & Roch. Railroad,	
East Enfield,	Enfield,	Grafton,	Enfield Station, 5 miles,	
East Epping R. R. Station,	Epping,	Rockingham,	Portsmouth R R.	
East Grafton,	Grafton,	Grafton,	Grafton, 1 mile,	
East Hampstead P. O.	Hampstead,	Rockingham,	Newton, 5 miles,	
East Haverhill P. O., R.R. Station,	Haverhill,	Grafton,	Bos., Con. & Mont. Railroad,	
East Hebron P. O.	Hebron,	Grafton,	Bristol, 10 miles,	
East Jaffrey P. O., R.R. Station,	Jaffrey,	Cheshire,	Monadnock Railroad,	
East Kingston P. O., R.R. Station,	E Kingston,	Rockingham,	Boston & Maine Railroad,	553
East Landaff P. O., (see Easton,)	Landaff,	Grafton,	Littleton, 11 miles,	
East Lebanon P. O., R.R. Station,	Lebanon,	Grafton,	Northern Railroad,	
East Lempster P. O.	Lempster,	Sullivan,	Newport, 10 miles,	
East Lyme,	Lyme,	Grafton,	East Thetford, 3½ miles,	
East Madison P. O.	Madison,	Carroll,	Union, 32 miles,	
East Moultonboro,	Moultonboro,	Carroll,	Meredith, 12 miles,	
East Northwood P. O.	Northwood,	Rockingham,	Epsom, 10 miles,	
East Pembroke P. O.	Pembroke,	Merrimack,	Allenstown Station, 1 mile,	
East Plainfield P. O.	Plainfield,	Sullivan,	Lebanon, 5 miles,	
East Rindge P. O.	Rindge,	Cheshire,	West Rindge, 4 miles,	
East Rochester P. O, R.R. Station,	Rochester,	Strafford,	Ports. & Rochester Railroad,	
East Springfield P. O.	Springfield,	Sullivan,	West Andover, 7 miles,	
East Sullivan P. O.	Sullivan,	Cheshire,	Keene, 7 miles,	
East Swanzey P. O.	Swanzey,	Cheshire,	Swanzey, 1½ mile,	
East Tilton P. O., R.R. Station,	Tilton,	Belknap,	Bos., Con. & Mont. Railroad,	
East Unity P. O	Unity,	Sullivan,	Newport, 5 miles,	
East Wakefield P. O	Wakefield,	Carroll,	Union, 13 miles,	
East Wakefield Depot P. O., R.R. S.	Wakefield,	Carroll,	Port., Gt. Falls & Con. Railroad.	
East Washington P. O.	Washington,	Sullivan,	Hillsborough Bridge, 10 miles,	
East Weare P. O., R.R. Station,	Weare,	Hillsboro',	Manch. & N. Weare Railroad,	
East Westmoreland P. O., R.R. Sta	Westmorel'd	Cheshire,	Cheshire Railroad,	
East Wilton, R R. Station,	Wilton,	Hillsboro',	Bos., Low. & Nash Railroad,	
East Wolfeborough P. O. & R.R Sta.	Wolfeboro,	Carroll,	Wolfeboro' Branch R. R.	
Easton P. O., (formerly E. Landaff)	Easton,	Grafton,	Littleton, 11 miles.	
Eaton P. O.	Eaton,	Carroll,	Conway, 5 miles,	656
Effingham P. O.	Effingham,	Carroll,	Ossipee 8 miles,	904
Effingham Centre P. O.	Effingham,	Carroll,	Ossipee, 6 miles,	
Effingham Falls P. O.	Effingham,	Carroll,	Ossipee, 12 miles,	
Ellisville,	Sullivan,	Cheshire,	Keene, 8 miles,	
Ellsworth,	Ellsworth,	Grafton,	Rumney, 10 miles,	192
Enfield P O., R.R Station,	Enfield,	Grafton,	Northern Railroad,	1662
Enfield Centre P. O.	Enfield,	Grafton,	Enfield Station, 5 miles,	
Epping P. O., R R Station,	Epping,	Rockingham,	Portsmouth Railroad,	1270
Epsom P. O , R.R Sta	Epsom,	Merrimack,	Sunc. Valley Railroad,	993
Errol P, O	Errol	Coos,	West Milan, 20 miles,	178
***Exeter P. O., (B.) R.R Station**	Exeter,	Rockingham,	Boston & Maine Railroad,	3437
Fabyan House P. O., R.R. Station,	Carroll,	Coos,	White Mountain Railroad,	
Farmington P. O., R.R. Sta	Farmington,	Strafford,	Dov. & Win. Br. B. & M. R.R.	2263
Farrarville,	Belmont,	Belknap,	East Tilton, 5 miles,	
Fisherville P. O., (B.) R.R.S.	Concord,	Merrimack,	Northern Railroad,	
Fitzwilliam P. O.	Fitzwilliam,	Cheshire,	Fitzwilliam Station, 1½ mile,	1140
Fitzwilliam Station P; O.	Fitzwilliam,	Cheshire,	Cheshire Railroad.	
Francestown P. O.	Francestown,	Hillsboro',	Greenfield, 4½ miles,	932
Franconia P. O	Franconia,	Grafton,	Littleton, 6 miles,	5[illegible]
Franklin P. O, (B.) R.R. Sta.	Franklin,	Merrimack,	Northern Railroad,	2301
Franklin Falls P. O.	Franklin,	Merrimack,	Franklin, 2 miles,	
Freedom P. O	Freedom,	Carroll,	Ossipee, 8 miles,	737
Fremont P. O., R R. Station,	Fremont,	Rockingham,	Roch. & Nash Railroad,	600
George's Mills P. O.	Sunapee,	Sullivan,	West Andover, 14 miles,	
Gilford P. O.	Gilford,	Belknap,	Lake Village, 4 miles,	3301
Gilmanton P. O.	Gilmanton,	Belknap,	Tilton, 10 miles,	1614
Gilmanton Iron Works P. O.	Gilmanton,	Belknap,	Alton, 5 miles,	
Gilsum P. O.	Gilsum,	Cheshire,	Keene, 7 miles,	590
Glen, R R. Station,	Bartlett,	Carroll,	Port. & Og'd Railroad,	
Goff's Falls P. O., R.R Station,	Manchester,	Hillsboro',	Concord Railroad,	
Goffstown P. O., R.R. Station,	Goffstown,	Hillsboro',	Manch. & N. Weare Railroad,	1656
Goffstown Centre P. O., R.R. Sta.	Goffstown,	Hillsboro',	Manch. & N. Weare Railroad,	
Golden Brook Mills P. O.	Windham,	Rockingham,	Windham, 4 miles,	
Gonic P. O , R R Station,	Rochester,	Strafford,	Dov. & Win. Br. B. & M. R.R.	
Gorham P. O., R.R. Station,	Gorham,	Coos,	Grand Trunk Railway,	1161
Goshen P. O.	Goshen,	Sullivan,	Newport, 6 miles,	570
Gosport,	Rye,	Rockingham,	Portsmouth, 12 miles	
Grafton P. O . R. R. Sta.,	Grafton,	Grafton,	Northern Railroad,	900
Grafton Centre P. O , R.R. Sta.	Grafton,	Grafton,	Northern Railroad,	
Grantham P. O	Grantham,	Sullivan,	Newport, 10 miles,	608
Great Falls P.O. (B.) R. R. Sta.	Somersworth,	Strafford,	B. & M. R.R., P. Gt. F. & C. R R.	4504
Greenfield P. O., R.R. Station,	Greenfield,	Hillsboro',	Bos., Low. & Nash., Wilton Br.	527
Greenland P. O.	Greenland,	Rockingham,	Greenland Station, 1 mile,	695
Greenland Sta. P. O., R.R. Sta.	Greenland,	Rockingham,	Ports. Railroad,	
Greenville P. O. R.R Sta.	Greenville,	Hillsboro',	Pet. & Shir. Br. Railroad,	960
Groton P. O.	Groton,	Grafton	Plymouth, 9 miles,	583
Groveton P. O., R.R. Sta.	Northum'r'ld,	Coos,	Grand Trunk Railway,	
Hampstead P. O.	Hampstead,	Rockingham,	Atkinson, 6 miles,	935
Hampton P. O , R.R Sta.	Hampton,	Rockingham,	Eastern Railroad,	1117
Hampton Falls P. O., R R. Sta.	Hamp't'n F'ls,	Rockingham,	Eastern Railroad,	679
Hancock P. O.	Hancock,	Hillsboro',	Greenfield, 6 miles,	792
Hanover P. O., (B.)	Hanover,	Grafton,	Norwich, Vt., 1 mile,	2085
Hanover Centre P. O.	Hanover,	Grafton,	Norwich, Vt., 7 miles,	
Harrisville P. O.	Harrisville,	Cheshire,	Keene, 12 miles,	696
Hart's Location,	Hart's Loc'n,	Carroll,	Bemis Station, Port. & Og'd R.R.	42
***Haverhill P. O., R.R. Sta**	Haverhill,	Grafton,	Bos., Con. & Mont. Railroad,	2270
Haverhill Corner, (Haverhill and Newbury Sta.,)	Haverhill,	Grafton,	Bos., Con. & Mont. Railroad,	
Hayes' Crossing, R.R. Sta.	Milton,	Strafford,	Ports., Gt. Falls & Con. Railroad,	
Hebron P. O.	Hebron,	Grafton,	Bristol, 10½ miles,	332
Henniker P. O., R.R. Sta.	Henniker,	Merrimack.	Cont. Riv. Railroad,	1288
High Bridge,	New Ipswich,	Hillsboro',	Greenville, 2 miles,	
Hill P. O., R R. Sta.	Hill,	Merrimack,	Bristol Br. Nor. Railroad,	620
Hillsborough P. O.	Hillsboro',	Hillsboro''	Hillsboro' Bridge, 2½ miles,	1595
Hillsborough Bridge P. O., R R Station,	Hillsboro',	Hillsboro',	Cont. Riv. Railroad,	
Hillsborough Centre P. O.	Hillsboro',	Hillsboro',	Hillsboro Bridge, 3 miles,	
Hillsboro' Upper Village P. O.	Hillsboro',	Hillsboro',	Hillsboro' Bridge, 4½ miles,	
Hinsdale P. O., (B.) R. R. Sta.	Hinsdale,	Cheshire,	Ashuelot Railroad,	1342
Holderness P. O.	Holderness,	Grafton,	Ashland, 4 miles	937
Hollis P. O., R R Sta.	Nashua,	Hillsboro',	Wor. & Nash. Railroad,	1080
Hooksett P O., R R Sta.	Hooksett,	Merrimack,	Concord Railroad,	1331
Hopkinton P. O., R.R. Sta.	Hopkinton,	Merrimack,	Con. & Clare. Railroad,	1819
Horn's Mills P. O.	Wakefield,	Carroll,	Wakefield, 5 miles,	
Howe Village,	Fitzwilliam,	Cheshire,	Fitzwilliam, 2 miles,	
Hudson P. O.	Hudson,	Hillsboro',	Nashua, 3 miles,	1066
Jackson P. O.	Jackson,	Carroll,	Glen Station, 3 miles,	474
Jackson Station,	Jackson,	Carroll,	Port. & Og'd Railroad,	
Jaffrey P. O.	Jaffrey,	Cheshire,	East Jaffrey, 1½ mile,	1256
Jefferson P. O.	Jefferson,	Coos,	Lancaster, 12 miles,	825
***KEENE P. O., (B.) R.R. Sta.**	Keene,	Cheshire,	Ashuelot R.R., and Cheshire R.R.	7000
Kelley's Corner,	Chichester,	Merrimack,	See North Chichester,	
Kelleyville, R.R. Sta.	Newport,	Sullivan,	Con. & Clare. Railroad,	
Kensington P. O.	Kensington,	Rockingham,	Exeter, 4 miles,	641
Kidderville	Colebrook,	Coos,	North Stratford, 24 miles,	
Kingston P. O	Kingston,	Rockingham,	E. Kingston, 3 miles,	1054
***Laconia P. O., (B.) R.R. Sta.**	Laconia,	Belknap.	Bos., Con. & Mont. Railroad.	3190

Name of Place.	Town.	County.	How accessible.	Pop
Lake Village P. O., R. R. Sta.	Gilford,	Belknap,	Bos., Con. & Mont. Railroad,	
***Lancaster P. O.,** R. R. Sta.	Lancaster,	Coos,	White Mountain Railroad,	2248
Landaff P. O.	Landaff,	Grafton,	Lisbon, 3 miles,	882
Langdon P. O.	Langdon,	Sullivan,	Bellows Falls, Vt., 5 miles,	411
Lebanon P. O., (B.) R. R. Sta.	Lebanon,	Grafton,	Northern Railroad,	3098
Lee P. O., R.R. Sta.	Lee,	Strafford,	Nash. & Roch. Railroad,	776
Leighton's Corners,	Ossipee,	Carroll,	Ossipee, 5 miles,	
Lempster P. O.	Lempster,	Sullivan,	Newport, 10 miles,	678
Lincoln P. O.	Lincoln,	Grafton,	Plymouth, 21 miles,	71
Lisbon P. O., R.R. Sta	Lisbon,	Grafton,	White Mountain Railroad,	1848
Litchfield,	Litchfield,	Hillsboro',	Thornton's Ferry, 1½ miles,	345
Littleton P. O., R. R. Sta.	Littleton,	Grafton,	White Mountain Railroad,	2446
Livermore,	Livermore,	Grafton,	North Lisbon, 10 miles.	
Locke's Corner,	Barnstead,	Belknap,	New Durham, 5 miles,	
Londonderry P. O., R.R. Sta.	Londonderry,	Rockingham,	Manch. & Law. Railroad,	1405
Loudon P. O.	Loudon,	Merrimack,	Concord, 8 miles,	1282
Loudon Centre P. O.	Loudon,	Merrimack,	Concord, 13 miles,	
Loudon Ridge P. O.	Loudon,	Merrimack,	Canterbury, 11 miles,	
Lower Bartlett P. O.	Bartlett,	Carroll,	Intervale 1½ mile,	
Lower Gilmanton P. O.	Gilmanton,	Belknap,	Alton, 9 miles,	
Lowellville,	Marlborough,	Cheshire,	South Keene, 3 miles,	
Lyman P. O.	Lyman,	Grafton,	Lisbon, 4½ miles,	658
Lyme P. O.,	Lyme,	Grafton,	E. Thetford, Vt., 2 miles,	1358
Lyme Centre P. O.	Lyme,	Grafton,	E. Thetford, Vt., 4 miles,	
Lyndeborough P. O., R.R. Sta.	Lyndeboro',	Hillsboro',	Bos., Low. & Nash., Wilton Br.	820
Lyndeborough Centre P. O.	Lyndeboro',	Hillsboro',	Lyndeborough, 3 miles,	
Mackerel Corner P. O.	Tuftonboro',	Carroll,	Alton Bay, 16 miles,	
Madbury R.R. Sta.	Madbury,	Strafford,	Boston & Maine Railroad,	408
Madison P. O., R. R. Sta.	Madison,	Carroll,	Ports., Gt. Falls & Con. Railroad,	646
MANCHESTER P. O., (B. O. G.) L. R. Sta.	Manchester,	Hillsboro',	Con. R. R., Ports. R. R., M. & L. R. R., M. & No. W. R. R.	23509
Marlborough P. O.	Marlborough,	Cheshire,	Marlboro Station, 2 miles,	1017
Marlborough Sta. P. O., R.R. Sta.	Marlborough,	Cheshire,	Cheshire Railroad,	
Marlow P. O	Marlow,	Cheshire,	Keene, 16 miles,	716
Marlow Hill,	Marlow,	Cheshire,	Keene, 17 miles,	
Martin's Station,	Hooksett,	Merrimack,	Concord Railroad,	
Mason P. O.	Mason,	Hillsboro',	Mason Station, 1 mile,	685
Mason Station,	Mason,	Hillsboro',	Pet. & Shir. Railroad,	
Massabesic, R.R. Sta.	Manchester,	Rockingham,	Con. & Ports. Railroad	
Mast Yard P. O.	Concord,	Merrimack,	Con. & Clare. Railroad,	
Melvin's Mills, R.R. Sta.	Bradford,	Merrimack,	Con. & Clare. Railroad,	
Melvin Village P. O.	Tuftonboro',	Carroll,	Ossipee, 12 miles,	
Meriden P. O.	Plainfield,	Sullivan,	Lebanon, 7 miles,	
Meredith Centre P. O.	Meredith,	Belknap,	Meredith Village, 5 miles,	1807
Meredith Village P. O, B. R. S.	Meredith,	Belknap,	Bos., Con. & Mont. Railroad,	
Merrill's Corners,	Farmington,	Strafford,	Farmington, 5 miles,	
Merrimack P. O., R.R. Sta.	Merrimack,	Hillsboro',	Concord Railroad,	1066
Messer's, R. R. Sta.,	Salem,	Rockingham,	Manch. & Law R. R.	
Middleton P. O.	Middleton,	Strafford,	Union, 3 miles,	540
Milan P. O.	Milan,	Coos,	West Milan, 7 miles,	730
Milford P. O., R. R. Sta.	Milford,	Hillsboro',	Bos., Low. & Nash., Wilton Ext.	2606
Millsfield,	Millsfield,	Coos,	Bethel, Me., 39 miles,	31
Mill Village P. O.	Goshen,	Sullivan,	Newport, 4½ miles,	
Mill Village,	Hanover,	Grafton,	Norwich, Vt., 5 miles,	
Millville,	Concord,	Merrimack,	Concord, 2 miles,	
Milton P. O , R.R. Stn.	Milton,	Strafford,	Ports., Gt. Falls & Con. Railroad,	1598
Milton Mills P. O.	Milton,	Strafford,	Union, 5 miles.	
Monroe P. O.	Monroe,	Grafton,	M'Indoe's Falls, Vt., 1 mile,	532
Moultonborough P. O.	Moultonboro'	Carroll,	Meredith, 9 miles,	1299
Moultonborough Centre,	Moultonboro'	Carroll,	Meredith, 9 miles,	
Moultonborough Corner,	Moultonboro'	Carroll,	Meredith, 10 miles,	
Moultonville P. O.	Ossipee,	Carroll,	Ossipee Centre, 1½ mile,	
Mount Sunapee, R.R. Stn.	Newbury,	Merrimack,	Con. & Clare. Railroad,	
Mount Vernon P. O.	Mt. Vernon,	Hillsboro',	Milford, 5 miles,	601
Mount Washington P. O., R. R. Sta.	Surgent's Pur.	Coos,	Mt Washington Railway,	
Munsonville P. O.	Nelson,	Cheshire,	Keene, 11 miles,	
NASHUA P. O., (B. C. G.) R. R. Sta.	Nashua,	Hillsboro',	B., L. & N. R., B., A. & C. R., W. & N. R., C. R., N. & R. Railr'd,	13000
Nelson P. O.	Nelson,	Cheshire,	Keene, 12 miles.	744
New Boston P. O.	New Boston,	Hillsboro',	Parker's, 5 miles,	1241
Newbury P. O., R.R. Sta	Newbury,	Merrimack,	Con. & Clare. Railroad,	601
Newcastle P. O., R.R Sta.	Newcastle,	Rockingham	Eastern Railroad,	607
New Durham P. O., R R Sta.	New Durh'm	Strafford,	Dov. & Win Railroad,	974
New Hampton P. O.	N'w Ham'tn,	Belknap,	Bristol, 5 miles,	1257
Newington P. O.	Newington,	Rockingham,	Newington Station, 1½ mile,	414
Newington Station,	Newington,	Rockingham,	Ports. & Dov. Railroad,	
New Ipswich P. O.	New Ipswich,	Hillsboro',	Mason, 3 miles,	1380
New London P. O.	New London,	Merrimack,	Potter Place, 3 miles,	959
New Market P. O, R R. Sta.	New Market,	Rockingham,	Boston & Maine Railroad,	1987
New Market Junction, R.R. Sta.	So. N. Mark't,	Rockingham,	Boston & Maine R. R., Ports. R.R.	
***Newport P. O., (B.) R. R. Sta.**	Newport,	Sullivan,	Con. & Clare. Railroad,	2163
New Rye,	Epsom,	Merrimack,	Allenstown, 2 miles,	
Newton P. O., R.R. Sta.	Newton,	Rockingham,	Boston & Maine Railroad,	856
Newton Junction P. O., R.R. Sta.	Newton,	Rockingham,	Bos. & Maine R. R., W. Ames. Br.	
North Barnstead P. O.	Barnstead,	Belknap,	Alton, 8 miles,	
North Benton,	Benton,	Grafton,	Warren Summit, 7½ miles,	
North Barrington P. O.	Barrington,	Strafford,	Barrington, 2 miles,	
North Boscawen P. O., R.R. Sta.	Boscawen,	Merrimack,	Northern Railroad,	
North Branch P. O.	Antrim,	Hillsboro',	Hillsboro' Bridge, 4 miles,	
North Charlestown P. O., R.R. Sta.	Charlestown,	Sullivan,	Sullivan Railroad,	
North Chatham P. O.	Chatham,	Carroll,	Fryeburg, Me., 12 miles,	
North Chichester P. O.	Chichester,	Merrimack,	Pittsfield, 2 miles,	
North Conway P. O., R.R. Sta.	Conway,	Carroll,	P. & O. R.R., P., Gt. F. & C. R.R.	
North Dorchester P. O.	Dorchester.	Grafton,	W. Rumney, 6 miles,	
North Dunbarton P. O.	Dunbarton,	Merrimack,	E. Weare, 4 miles,	
North Epping P. O.	Epping,	Rockingham,	Epping, 4 miles,	
Northfield,	Northfield,	Merrimack,	Tilton, 1 mile,	836
Northfield Station P. O.	Northfield,	Merrimack,	Bos., Con. & Mont. Railroad,	
North Grantham P. O.	Grantham,	Sullivan,	Newport, 13 miles,	
North Groton P. O.	Groton,	Grafton,	Rumney, 5 miles,	
North Hampton P. O., R.R. Sta.	N. Hampton,	Rockingham,	Eastern Railroad,	723
North Haverhill P. O., R.R. Sta.	Haverhill,	Grafton,	Bos., Con. & Mont. Railroad,	
North Lisbon P. O., R.R. Sta.	Lisbon,	Grafton,	White Mountain Railroad,	
North Littleton P. O.	Littleton,	Grafton,	Littleton, 5 miles,	
North Londonderry P. O., R.R. Sta.	Londonderry,	Rockingham,	Manch. & Law. Railroad,	
North Lyndeborough P. O.	Lyndeboro',	Hillsboro',	Wilton, 8 miles,	
North Monroe P. O.	Monroe,	Grafton,	Barnet, Vt., 4 miles,	
North Richmond P. O.	Richmond,	Cheshire,	Winchester, 6 miles,	
North Salem P. O.	Salem,	Rockingham,	Windham, 3 miles,	
North Salisbury,	Salisbury,	Merrimack,	Andover. 3 miles,	
North Sanbornton P. O.	Sanbornton,	Belknap,	Hill, 5 miles,	
North Sandwich P. O.	Sandwich,	Carroll,	Meredith, 8 miles,	
North Strafford P. O.	Strafford,	Strafford,	Farmington, 5 miles,	
N. Stratford, R.R. Sta., (Coos P. O.)	Strafford,	Coos,	Grand Trunk Railway,	
North Sutton P. O.	Sutton,	Merrimack,	Bradford, 9 miles,	
Northumberland P. O., R.R. Sta.	Northumb'nd	Coos,	Grand Trunk Railway,	
Northville, R.R. Sta.	Newport,	Sullivan,	Con. & Clare. Railroad,	
North Wakefield P. O., R.R. Sta.	Wakefield,	Carroll,	Ports., Gt. Falls & Con. Railroad,	
North Weare P. O., R.R. Sta.	Weare,	Hillsboro',	Manch. & N. Weare Railroad,	
North Wolfeborough,	Wolfeboro',	Carroll,	Wolfeboro' Station, 2 miles,	
Northwood Centre P. O.	Northwood,	Rockingham,	Epsom, 5¼ miles,	1430

Name of Place.	Town.	County.	How accessible.	Pop.
Northwood Narrows P. O.	Northwood,	Rockingham,	Epsom, 4 miles,	
Northwood Ridge P. O.	Northwood,	Rockingham,	Epsom, 8 miles,	
North Woodstock P. O.	Woodstock,	Grafton,	Plymouth, 20 miles,	
Nottingham P. O.	Nottingham,	Rockingham,	Lee, 4 miles,	1130
Oil Mills P. O., R.R. Sta.	Weare,	Hillsboro',	Manch. & Weare Railroad,	
Orange,	Orange,	Grafton,	East Canaan, 3 miles,	340
Orford P. O.	Orford,	Grafton,	Fairlee, Vt., 1 mile,	1119
Orfordville P. O.	Orford,	Grafton,	Fairlee, Vt., 4 miles,	
*Ossipee P. O., R.R. Sta.	Ossipee,	Carroll,	Ports., Gt. Falls & Con. Railroad,	1822
Ossipee Centre P. O., R.R. Sta.	Ossipee,	Carroll,	Ports., Gt. Falls & Con. Railroad,	
Pelham P. O.	Pelham,	Hillsboro',	Nashua, 8 miles,	661
Pembroke P. O.	Pembroke,	Merrimack,	Suncook, 2 miles,	2518
Peterborough P. O., R.R. Sta.	Peterborough	Hillsboro',	Monadnock Railroad,	2223
Pierce's Bridge P. O., R.R. Sta.	Bethlehem,	Grafton,	White Mountain Railroad,	
Piermont P. O.	Piermont,	Grafton,	Bradford, 2 miles,	792
Pike's Crossing, R.R. Sta.	Wakefield,	Carroll,	Ports, Gt. Falls & Con. Railroad,	
Pittsburgh P. O.	Pittsburgh,	Coos,	North Stratford, 28 miles,	400
Pittsfield P. O., R. R. Sta.	Pittsfield,	Merrimack,	Sun. Val. Railroad,	1800
Place's Station,	Farmington,	Strafford,	Dover & Win. Railroad,	
Plainfield P. O.	Plainfield,	Sullivan,	Windsor, Vt., 6 miles,	1539
Plaistow P. O., R.R. Sta.	Plaistow,	Rockingham,	Boston & Maine Railroad,	879
Plymouth P. O., R.R. Sta.	Plymouth,	Grafton,	Bos., Con. & Mont. Railroad,	1409
PORTSMOUTH P. O., (B. C. G.) R. R. Sta.	Portsmouth,	Rockingham,	Eastern R., Ports. R. R., P. & Do. R. R., Ports., Gt. F. & Con. R. R.	
Potter Place P. O., R. R. Sta.	Andover,	Merrimack.	Northern Railroad,	
Pottersville P. O.	Harrisville,	Cheshire,	Keene, 8 miles,	
Pratt Pond, R.R. Sta.	Mason,	Hillsboro',	Pet. & Shir. Railroad,	
Profile House P. O.	Franconia,	Grafton,	Littleton, 12 miles,	
Quaker City,	Unity,	Sullivan,	N. Charlestown, 4 miles,	
Quincy, R.R. Sta.	Rumney,	Grafton,	Bos., Con. & Mont. Railroad,	
Randolph,	Randolph,	Coos,	Gorham, 5 miles,	138
Raymond P. O., R.R. Sta.	Raymond,	Rockingham,	Ports. Railroad,	1200
Red Hill P. O.	Moultonboro'	Carroll,	Meredith, 9 miles,	
Reed's Ferry P. O., R.R. Sta.	Merrimack,	Hillsboro',	Concord Railroad,	
Richmond P. O.	Richmond,	Cheshire,	Winchester, 6 miles,	868
Rindge P. O.	Rindge,	Cheshire,	West Rindge, 1¼ miles,	1107
Robertson's Corner,	Eaton	Carroll,	Madison Station, 5 miles,	
Robinson's Station,	Pembroke,	Merrimack,	Concord Railroad,	
Roby's Corner P. O., R.R. Sta.	Warner,	Merrimack,	Con. & Clare. Railroad,	
Rochester P. O., R.R. Sta.	Rochester,	Strafford,	P.&R.R.,R.&N.R., P.,G.F.&C.R.R.	6000
Rollinsford,	Rollinsford,	Strafford,	Salmon Falls, 2 miles,	1500
Roxbury,	Roxbury,	Cheshire,	Keene, 5 miles,	174
Rumney P. O., R.R. Sta.	Rumney,	Grafton,	Rumney Station, 1 mile,	1164
Rumney Station, P. O., R.R. Sta.	Rumney,	Grafton,	Bos., Con. & Mont. Railroad,	
Russell's Crossing, R.R. Sta.	Greenfield,	Hillsboro',	Bos., Low. & Nash. R.R., Wil. Br.	
Rye P. O.	Rye,	Rockingham,	Greenland, 3 miles,	1090
Rye Beach P. O.	Rye,	Rockingham,	Greenland, 4 miles,	
Salem P. O.	Salem,	Rockingham,	Salem Station, 1½ mile,	1603
Salem Station P. O., R.R. Sta.	Salem,	Rockingham,	Manch. & Law. Railroad,	
Salisbury P. O.	Salisbury,	Merrimack,	North Boscawen, 3½ miles,	897
Salmon Falls P. O., R.R. Sta.	Rollinsford,	Strafford,	P., Gt. F. & C. R R., B. & M. R.R.	
Sanbornton P. O.	Sanbornton,	Belknap,	Tilton, 4 miles,	1236
Sanborn's P. O.	Wakefield,	Carroll,		
Sandown P. O., R.R. Sta.	Sandown,	Rockingham,	Nash. & Roch. Railroad,	496
Sandwich P. O.	Sandwich,	Carroll,	Meredith, 12 miles,	1854
Sandwich Lower Corner,	Sandwich,	Carroll,	Meredith, 12 miles,	
Sandwich Centre P.O.	Sandwich,	Carroll,	Meredith, 12 miles,	
Scytheville P. O.	New London,	Merrimack,	West Andover, 4 miles,	
Seabrook P. O., R.R. Sta.	Seabrook,	Rockingham,	Eastern Railroad,	
Shaker Village P. O.	Canterbury,	Merrimack,	Canterbury, 7½ miles,	
Sharon,	Sharon,	Hillsboro',	Peterborough, 5 miles,	162
Shelburne P. O., R.R. Sta.	Shelburne,	Coos,	Grand Trunk Railway,	250
Short Falls, R.R. Sta.	Epsom,	Merrimack,	Sun. Valley Railroad,	
Souhegan,	Merrimack,	Hillsboro',	Reed's Ferry, 1 mile,	
South Acworth P. O.	Acworth,	Sullivan,	Bellows Falls, Vt., 12 miles,	
South Antrim,	Antrim,	Hillsboro',	Hillsboro' Bridge, 8 miles,	
South Barnstead P. O.	Barnstead,	Belknap,	Pittsfield, 3 miles	
South Charlestown P. O.	Charlestown,	Sullivan,	Sullivan Railroad,	
South Columbia P. O.	Columbia,	Coos,	North Stratford, 3½ miles,	
South Danbury P. O., R.R. Sta.	Danbury,	Merrimack,	Northern Railroad,	
South Deerfield P. O.	Deerfield,	Rockingham,	Candia, 3 miles,	
South Effingham P. O.	Effingham,	Carroll,	Ossipee, 6 miles,	
South Hampton P. O.	S. Hampton,	Rockingham,	Kingston, 4 miles,	448
South Keene, R.R. Sta.	Keene,	Cheshire,	Cheshire Railroad,	
South Kingston P. O.	Kingston,	Rockingham,	Newton, 1 mile,	
South Lancaster P. O.,	Lancaster,	Coos,	Lancaster, 3 miles,	
South Lee P. O., R.R. Sta.	Lee,	Strafford,	Nash. & Roch. Railroad,	
South Lyndeborough P. O. R.R. Sta.	Lyndeboro',	Hillsboro',	B., L. & N. R.R., Wilton Br.	
South Merrimack P. O., R.R. Sta.	Merrimack,	Hillsboro',	Bos., Low. & Nash. Railroad,	
South Milton P. O. R.R. Sta.	Milton,	Strafford,	Ports., Gt. Falls & Con. Railroad,	
South Newbury P. O.	Newbury,	Merrimack,	Newbury Station, 2 miles,	
South Newmarket P. O., R.R. Sta.	S. Newmark't,	Rockingham,	Boston & Maine Railroad,	808
S. Newmarket Junc. P. O., R.R. Sta.	Newmarket,	Rockingham,	B. & M. R.R., Ports. Railroad,	
South Salisbury,	Salisbury,	Merrimack,	North Boscawen, 2 miles,	
South Seabrook P. O.	Seabrook,	Rockingham,	Seabrook, 2 miles,	
South Stoddard,	Stoddard,	Cheshire,	Keene, 16 miles,	
South Sunapee P. O.	Sunapee,	Sullivan,	Sunapee Station,	
South Sutton P. O.	Sutton,	Merrimack,	Bradford, 4 miles,	
South Tamworth P. O.	Tamworth,	Carroll,	West Ossipee, 4 miles,	
South Weare P. O.	Weare,	Hillsboro',	Oil Mills, 4 miles,	
South Wolfeborough P. O.	Wolfeboro',	Carroll,	Wolfeborough, 3 miles,	
Springfield P. O.	Springfield,	Sullivan,	West Andover, 5 miles,	781
Stark P. O., R.R. Sta.	Stark,	Coos,	Grand Trunk Railway,	480
Stark Water P. O., R.R. Sta.	Stark,	Coos,	Grand Trunk Railway,	
Stata Line, R. R. Sta.,	Fitzwilliam,	Cheshire,	Cheshire Railroad,	
Stewartstown P. O.	Stewartsto'n,	Coos,	North Stratford, 20 miles	900
Stoddard P. O	Stoddard,	Cheshire,	Keene, 16 miles,	667

Name of Place.	Town.	County.	How accessible.	Pop.
Strafford P. O.	Strafford,	Strafford,	Rochester, 6 miles,	1668
Strafford Blue Hills P. O.	Strafford,	Strafford,	Farmington, 6 miles,	
Strafford Centre P. O.	Strafford,	Strafford,	Farmington, 4 miles,	
Strafford Corner P. O.	Strafford,	Strafford,	Rochester, 4 miles,	
Stratford P. O.	Stratford,	Coos,	Stratford Hollow, ½ mile,	887
Stratford Hollow, R.R. Sta.	Stratford,	Coos,	Grand Trunk Railway,	
Stratham P. O.	Stratham,	Rockingham,	Stratham Station, 2 miles,	769
Stratham Station,	Stratham,	Rockingham,	Con. & Ports. Railroad,	
Sugar Hill P. O.	Lisbon,	Grafton,	Lisbon, 7 miles,	
Sullivan P. O.	Sullivan,	Cheshire,	Keene, 7 miles,	347
Sunapee P. O., R R. Sta.	Sunapee,	Sullivan,	Con. & Clare. Railroad,	808
Suncook P. O., (B.) R.R. Sta.	Pembroke,	Merrimack,	Con. Railroad, Sun. Val. Railr'd,	
Surry P. O.	Surry,	Cheshire,	East Westmoreland, 4 miles,	318
Sutton P. O.	Sutton,	Merrimack,	Bradford, 6 miles,	1155
Swanzey P. O., R.R. Sta.	Swanzey,	Cheshire,	Ashuelot Railroad,	1626
Tamworth P. O.	Tamworth,	Carroll,	West Ossipee, 4 miles,	1344
Tamworth Iron Works P. O.	Tamworth,	Carroll,	Madison, 4 miles,	
Temple P. O.	Temple,	Hillsboro',	Greenville, 3 miles,	400
Tenth Section, R.R. Sta.	Westmorel'd,	Cheshire,	Cheshire Railroad,	
Thornton P. O., R.R. Sta.	Thornton,	Grafton,	Bos., Con. & Mont. Railroad,	840
Thornton's Ferry P. O., R.R. Sta.	Merrimack	Hillsboro',	Concord Railroad,	
Tilton P. O., R.R. Sta.	Tilton,	Belknap,	Bos., Con. & Mont. Railroad,	1147
Troy P. O., R.R. Sta.	Troy,	Cheshire,	Cheshire Railroad,	787
Tuftonborough,	Tuftonboro',	Carroll,	Wolfeborough Bridge, 7 miles,	949
Tuftonborough Corner P. O.	Tuftonboro',	Carroll,	Wolfeborough Bridge, 7 miles,	
Twin Mountain P. O., R.R. Sta.	Carroll,	Coos,	White Mountain Railroad,	
Union P. O., R.R. Sta.	Wakefield,	Carroll,	Ports., Gt. Falls & Con. Railroad,	
Union Bridge. R.R. Sta.	Tilton,	Belknap,	Bos., Con. & Mont. Railroad,	
Unionville,	Swanzey,	Cheshire,	Swanzey, 2 miles,	
Unity P. O.	Unity,	Sullivan,	Claremont, 11 miles,	839
Upper Bartlett, R.R. Sta.	Bartlett,	Carroll,	Port. & Og'd Railroad	
Wadley's Falls P. O.	Lee,	Strafford,	Lee, 2 miles,	
Wakefield P. O., R.R. Sta.	Wakefield,	Carroll,	Ports., Gt. Falls & Con. Railroad,	1185
Walpole P. O., R.R. Sta.	Walpole,	Cheshire,	Cheshire Railroad,	1830
Warner P. O., R.R. Sta.	Warner,	Merrimack,	Con. & Clare. Railroad,	1667
Warren P. O., R.R. Sta.	Warren,	Grafton,	Bos., Con. & Mont. Railroad,	960
Warren Summit P. O., R.R. Sta.	Warren,	Grafton,	Bos., Con. & Mont. Railroad,	
Washington P. O.	Washington,	Sullivan,	Hillsboro' Bridge, 12 miles,	839
Waterloo, R. R. Sta.,	Warner,	Merrimack,	Conc. & Claremont R. R.	
Waterville,	Waterville,	Grafton,	Plymouth, 18 miles,	32
Water Village P. O.	Ossipee,	Carroll,	Ossipee, 4 miles,	
Weare P. O., R.R. Sta.	Weare,	Hillsboro'	Manch. & North Weare Railroad,	2093
Webster P. O.	Webster,	Merrimack,	Boscawen, 7 miles,	689
Webster Mills, R R. Sta.	Pittsfield,	Merrimack,	Sun. Valley Railroad,	
Weir's Bridge P. O., R.R. Sta.	Laconia,	Belknap,	Bos., Con. & Mont. Railroad,	
Wentworth P. O., R.R. Sta.	Wentworth,	Grafton,	Bos., Con. & Mont. Railroad,	1000
Wentworth's Location P. O.	W'th Locat'n,	Coos,	West Milan, 25 miles,	38
West Alton P. O.	Alton,	Belknap,	Alton, 8 miles,	
West Andover P. O., R.R.,	Andover,	Merrimack,	Northern Railroad,	
West Campton P. O.	Campton,	Grafton,	Plymouth, 7 miles,	
West Canaan, R.R. Sta.	Canaan,	Grafton,	Northern Railroad,	
West Chesterfield,	Chesterfield,	Cheshire,	Dummerston, Vt., ½ mile,	
West Claremont P. O., R.R. Sta.	Claremont,	Sullivan,	Sullivan Railroad,	
West Concord P. O., R.R. Sta.	Concord,	Merrimack,	Con. & Clare. Railroad,	
West Deering P. O.	Deering,	Hillsboro',	Hillsboro' Bridge, 4 miles,	
West Derry,	Derry,	Rockingham,	Derry Station, 1½ miles,	
West Enfield P. O.	Enfield,	Grafton,	Lebanon, 6 miles,	
West Epping P. O., R.R. Sta.	Epping,	Rockingham,	Con. & Ports. Railroad,	
West Farmington.	Farmington,	Strafford,	Farmington, 2 miles,	
West Hampstead P. O., R.R. Sta.	Hampstead,'	Rockingham,	Nashua & Roch. Railroad	
West Henniker P. O., R.R. Sta.	Henniker,	Merrimack,	Con. River Railroad,	
West Hopkinton P. O., R.R. Sta.	Hopkinton,	Merrimack,	Con. River Railroad,	
West Lebanon P. O.	Lebanon,	Grafton,	Northern Railroad,	
West Milan P. O., R.R. Sta.	Milan,	Coos,	Grand Trunk Railway,	
West Milton P. O.	Milton,	Strafford,	Milton, 2 miles,	
Westmoreland P. O.	Westmorel'd,	Cheshire,	Westmoreland Station, 2 miles,	1256
Westmoreland Station P. O.	Westmorel'd,	Cheshire,	Cheshire Railroad,	
West Nottingham P. O.	Nottingham,	Rockingham,	Lee, 6 miles,	
West Ossipee P. O., R.R. Sta.	Ossipee,	Carroll,	Ports., Gt. Falls & Con. Railroad,	
West Peterborough P. O.	Peterboro',	Hillsboro',	Peterborough, 2 miles,	
West Plymouth P. O.	Plymouth,	Grafton,	Plymouth, 4 miles,	
Westport P. O., R.R. Sta.	Swanzey,	Cheshire,	Ashuelot Railroad,	
West Rindge P. O., R.R. Sta.	Rindge,	Cheshire,	Monadnock Railroad,	
West Rumney P. O.	Rumney,	Grafton,	Bos., Con. & Mont. Railroad,	
West Salisbury P. O.	Salisbury,	Merrimack,	Andover, 4 miles,	
West Springfield P. O.	Springfield,	Sullivan,	South Danbury, 9 miles,	
West Stewartstown P. O.	Stewartst'n,	Coos,	North Stratford, 22 miles,	
West Swanzey P. O,	Swanzey Sta.	Cheshire,	Ashuelot Railroad,	
West Thornton P. O.	Thornton,	Grafton,	Plymouth, 14 miles'	
West Wilton P. O,	Wilton,	Hillsboro',	Wilton, 5 miles,	
West Windham P. O., R.R. Sta.	Windham,	Rockingham,	Nashua & Roch. Railroad,	
Whitefield P. O., R.R. Sta.	Whitefield,	Coos,	White Mountain Railroad,	
Whitewaterville,	Landaff,	Grafton,	Warren Summit, 8 miles,	
Willey P. O., R R. Sta.	H's Locat'n,	Carroll,	Port. & Og'd Railroad,	
Wilmot P. O.	Wilmot,	Merrimack,	West Andover, 2 miles,	1672
Wilmot Flat P. O.	Wilmot,	Merrimack,	West Andover, 3 miles,	
Wilson's Crossing P. O., R.R. Sta.	Londonderry,	Rockingham,	Manch. & Law. Railroad,	
Wilton P. O., (B.)	Wilton,	Hillsboro',	East Wilton, 1 mile	1974
Winchester P. O., R.R. Sta.	Winchester	Cheshire,	Ashuelot Railroad,	2097
Windham P. O.	Windham,	Rockingham,	Windham, 2½ miles,	753
Windham Station,	Windham,	Rockingham,	M. & L., N. & R. Railroad.	
Wing Road, R.R. Sta.	Whitefield,	Coos,	White Mountain Railroad,	
Windsor,	Windsor,	Hillsboro',	Hillsboro' Bridge, 6 miles,	81
Wolfeborough P. O., R.R. Sta.	Wolfeboro',	Carroll,	Wolfeboro' R. R.	1995
Wolfeborough Junction, R.R. Sta.	Wakefield,	Carroll,	Ports., Gt. Falls & Con. Railroad,	
Wolfeborough Centre P. O.	Wolfeboro',	Carroll,	Wolfeboro' R. R.	
Woodstock P. O.	Woodstock,	Grafton,	Plymouth, 18 miles,	405
Woodsville P. O., R R. Sta.	Haverhill,	Grafton,	Bos., Con. & Mont. Railroad,	

POPULATION OF THE UNITED STATES AND TERRITORIES, BY COUNTIES.

From the United States Censuses of 1860 and 1870.

ALABAMA.

	1860.	1870.
Autauga	16,739	11,623
Baker	....	6,194
Baldwin	7,530	6,004
Barbour	30,812	29,309
Bibb	11,894	7,469
Blount	10,865	9,945
Bullock	....	24,474
Butler	18,122	14,981
Calhoun	21,539	13,980
Chambers	23,214	17,562
Cherokee	18,360	11,132
Choctaw	13,877	12,676
Clarke	15,049	14,663
Clay	....	9,560
Cleburne	....	8,017
Coffee	9,623	6,171
Colbert	....	12,537
Conecuh	11,311	9,574
Coosa	19,273	11,945
Covington	6,469	4,868
Crenshaw	....	11,156
Dale	12,197	11,325
Dallas	33,625	40,705
De Kalb	10,705	7,126
Elmore	....	14,477
Escambia	....	4,041
Etowah	....	10,109
Fayette	12,850	7,136
Franklin	18,627	8,006
Geneva	....	2,959
Greene	30,859	18,399
Hale	....	21,792
Henry	14,918	14,191
Jackson	18,283	19,410
Jefferson	11,746	12,345
Lauderdale	17,420	15,091
Lawrence	13,975	16,658
Lee	....	21,750
Limestone	15,306	15,017
Lowndes	27,716	25,719
Macon	26,802	17,727
Madison	26,451	31,267
Marengo	31,171	26,151
Marion	11,182	6,059
Marshall	11,172	9,871
Mobile	41,131	49,311
Monroe	15,667	14,214
Montgomery	35,904	43,704
Morgan	11,335	12,187
Perry	27,724	24,975
Pickens	22,316	17,690
Pike	24,435	17,423
Randolph	20,059	12,006
Russell	26,592	21,636
Sanford	....	8,893
Shelby	12,618	12,218
St. Clair	11,013	9,360
Sumpter	24,035	24,109
Talladega	23,520	18,064
Tallapoosa	23,827	16,963
Tuscaloosa	23,200	20,081
Walker	7,980	6,543
Washington	4,669	3,912
Wilcox	24,018	28,377
Winston	3,576	4,155
Total	964,201	996,992

(435,080 *slaves included in the total population for* 1860.)

ARKANSAS.

	1860.	1870.
Arkansas	8,844	8,268
Ashley	8,590	8,042
Benton	9,306	13,831
Boone	....	7,032
Bradley	8,388	8,646
Calhoun	4,103	3,853
Carroll	9,383	5,780
Chicot	9,234	7,214
Clarke	9,735	11,953
Columbia	12,449	11,397
Conway	6,697	8,112
Craighead	3,066	4,577
Crawford	7,850	8,957
Crittenden	4,920	3,831
Cross	....	3,915
Dallas	8,283	5,707
Desha	6,459	6,125
Drew	9,078	9,960
Franklin	7,298	9,627
Fulton	4,024	4,843
Grant	....	3,943
Greene	5,843	7,573
Hempstead	13,989	13,768
Hot Springs	5,635	5,877
Independence	14,307	14,566
Izard	7,215	6,806
Jackson	10,493	7,268
Jefferson	14,971	15,733
Johnson	7,612	9,152
Lafayette	8,464	9,139
Lawrence	9,372	5,981
Little River	....	3,236
Madison	7,740	8,231
Marion	6,192	3,979
Mississippi	3,895	3,633
Monroe	5,657	8,336
Montgomery	3,633	2,984
Newton	3,393	4,374
Ouachita	12,936	12,975
Perry	2,465	2,685
Phillips	14,877	15,372
Pike	4,025	3,788
Poinsett	3,621	1,720
Polk	4,262	3,376
Pope	7,883	8,386
Prairie	8,854	5,604
Pulaski	11,699	32,066
Randolph	6,261	7,466
St. Francis	8,672	6,714
Saline	6,640	3,911
Scott	5,145	7,483
Searcy	5,271	5,614
Sebastian	9,238	12,940
Sevier	10,516	4,492
Sharpe	....	5,400
Union	12,288	10,571
Van Buren	5,357	5,107
Washington	14,673	17,266
White	8,316	10,347
Woodruff	....	6,891
Yell	6,333	8,048
Total	435,450	484,471

(111,115 *slaves included in the total population for* 1860.)

CALIFORNIA.

	1860.	1870.
Alameda	8,927	24,237
Alpine	....	685
Amador	10,930	9,582
Butte	12,106	11,403
Calaveras	16,299	8,895
Colusa	2,274	6,165
Contra Costa	5,328	8,461
Del Norte	1,993	2,022
El Dorado	20,562	10,309
Fresno	4,605	6,336
Humboldt	2,694	6,140
Inyo	....	1,956
Kern	....	2,925
Klamath	1,803	1,686
Lake	....	2,969
Lassen	....	1,327
Los Angeles	11,333	15,309
Marin	3,334	6,903
Mariposa	6,243	4,572
Mendocino	3,967	7,545
Merced	1,141	2,807
Mono	....	430
Monterey	4,739	9,876
Napa	5,521	7,163
Nevada	16,446	19,134
Placer	13,270	11,357
Plumas	4,363	4,489
Sacramento	24,142	26,830
San Bernardino	5,551	3,988
San Diego	4,324	4,951
San Francisco	56,802	149,473
San Joaquin	9,435	21,050
San Luis Obispo	1,782	4,772
San Mateo	3,214	6,635
Santa Barbara	3,543	7,784
Santa Clara	11,912	26,246
Santa Cruz	4,944	8,743
Shasta	4,360	4,173
Sierra	11,387	5,619
Siskiyou	7,629	6,848
Solano	7,169	16,871
Sonoma	11,867	19,819
Stanislaus	2,245	6,499
Sutter	3,390	5,030
Tehama	4,044	3,587
Trinity	5,125	3,213
Tulare	4,638	4,533
Tuolumne	16,229	8,150
Yolo	4,716	9,899
Yuba	13,668	10,851
Total	379,994	560,247

CONNECTICUT.

	1860.	1870.
Fairfield	77,476	95,276
Hartford	89,962	109,007
Litchfield	47,318	48,727
Middlesex	30,859	36,099
New Haven	97,345	121,257
New London	61,731	66,570
Tolland	21,177	22,000
Windham	34,279	38,518
Total	460,147	537,454

DELAWARE.

	1860.	1870.
Kent	27,804	29,804
New Castle	54,797	63,515
Sussex	29,615	31,696
Total	112,216	125,015

(1,798 *slaves included in the total population for* 1860.)

FLORIDA.

	1860.	1870.
Alachua	8,232	17,328
Baker	....	1,325
Bradford	....	3,671
Brevard	246	1,216
Calhoun	1,446	998
Clay	1,914	2,098
Columbia	4,646	7,335
Dade	83	85
Duval	5,074	11,921
Escambia	5,768	7,817
Franklin	1,904	1,256
Gadsden	9,396	9,802
Hamilton	4,154	5,749
Hernando	1,200	2,938
Hillsborough	2,981	3,216
Holmes	1,386	1,572
Jackson	10,209	9,528
Jefferson	9,876	13,398
Lafayette	2,068	1,783
Leon	12,343	15,236
Levy	1,781	2,018
Liberty	1,457	1,050
Madison	7,779	11,121
Manatee	854	1,931
Marion	8,609	10,804
Monroe	2,913	5,657
Nassau	3,644	4,247
New River	3,820	....
Orange	987	2,195
Polk	....	3,169
Putnam	2,712	3,821
Santa Rosa	5,480	3,312
St. John's	3,038	2,618
Sumter	1,549	2,952
Suwannee	2,303	3,556
Taylor	1,384	1,453
Volusia	1,158	1,723
Wakulla	2,839	2,506
Walton	3,037	3,041
Washington	2,154	2,302
Total	140,424	187,748

(61,745 *slaves included in the total population for* 1860.)

GEORGIA.

	1860.	1870.
Appling	4,190	5,086
Baker	4,985	6,843
Baldwin	9,078	10,618
Banks	4,707	4,973
Bartow	....	16,566
Berrien	3,475	4,518
Bibb	16,291	21,255
Brooks	6,356	8,342
Bryan	4,015	5,252
Bulloch	5,668	5,610
Burke	17,165	17,679
Butts	6,455	6,941
Calhoun	4,913	5,503
Camden	5,420	4,615
Campbell	8,301	9,176
Carroll	11,991	11,782
Cass	15,724	....
Catoosa	5,082	4,409
Charlton	1,780	1,897
Chatham	31,043	41,279
Chattahoochee	5,797	6,059
Chattooga	7,165	6,902
Cherokee	11,291	10,399
Clarke	11,218	12,941
Clay	4,893	5,493
Clayton	4,466	5,477
Clinch	3,063	3,945
Cobb	14,242	13,814
Coffee	2,879	3,192
Colquitt	1,316	1,654
Columbia	11,860	13,529
Coweta	14,703	15,875
Crawford	7,693	7,557
Dade	3,069	3,033
Dawson	3,856	4,369
Decatur	11,922	15,183
De Kalb	7,806	10,014
Dooly	8,917	9,790
Dougherty	8,295	11,517
Early	6,149	6,998
Echols	1,491	1,978
Effingham	4,755	4,214
Elbert	10,433	9,249
Emanuel	5,081	6,134
Fannin	5,139	5,429
Fayette	7,047	8,221
Floyd	15,195	17,230
Forsyth	7,749	7,983
Franklin	7,303	7,893
Fulton	14,427	33,446
Gilmer	6,724	6,644
Glascock	2,437	2,736
Glynn	3,889	5,376
Gordon	10,146	9,268
Greene	12,652	12,454
Gwinnett	12,940	12,431
Habersham	5,966	6,322
Hall	9,366	9,607
Hancock	12,044	11,317
Haralson	3,039	4,004
Harris	13,736	13,284
Hart	6,137	6,783
Heard	7,805	7,866
Henry	10,702	10,102
Houston	15,611	20,406
Irwin	1,699	1,837
Jackson	10,605	11,181
Jasper	10,743	10,439
Jefferson	10,219	12,190
Johnson	2,919	2,964
Jones	9,107	9,436
Laurens	6,998	7,834
Lee	7,196	9,567
Liberty	8,367	7,688
Lincoln	5,466	5,413
Lowndes	5,249	8,321
Lumpkin	4,626	5,161
Macon	8,449	11,458
Madison	5,933	5,227
Marion	7,390	8,000
McIntosh	5,546	4,491
Meriwether	15,330	13,756
Miller	1,791	3,091
Milton	4,602	4,284
Mitchell	4,308	6,633
Monroe	15,953	17,213
Montgomery	2,997	3,586
Morgan	9,997	10,696
Murray	7,083	6,500
Muscogee	16,584	16,663
Newton	14,320	14,615
Oglethorpe	11,549	11,782
Paulding	7,038	7,639
Pickens	4,951	5,317
Pierce	1,973	2,778
Pike	10,078	10,905
Polk	6,295	7,822
Pulaski	8,744	11,940
Putnam	10,125	10,461
Quitman	3,499	4,150
Rabun	3,271	3,256
Randolph	9,571	10,561
Richmond	21,284	25,724
Schley	4,633	5,129
Schriven	8,274	9,175
Spalding	8,699	10,205
Stewart	13,422	14,204
Sumter	9,428	16,559
Talbot	13,616	11,913
Taliaferro	4,583	4,796
Tatnall	4,352	4,860
Taylor	5,998	7,143
Telfair	2,713	3,245
Terrell	6,232	9,053
Thomas	10,766	14,523
Towns	2,459	2,780
Troup	16,262	17,632
Twiggs	8,320	8,545
Union	4,413	5,267
Upson	9,910	9,430
Walker	10,082	9,925
Walton	11,074	11,038
Ware	2,200	2,286
Warren	9,820	10,545
Washington	12,698	15,842
Wayne	2,268	2,177
Webster	5,030	4,677
White	3,315	4,606
Whitfield	10,047	10,117
Wilcox	2,115	2,439
Wilkes	11,420	11,796
Wilkinson	9,376	9,383
Worth	2,763	3,778
Total	1,057,286	1,184,109

(462,198 *slaves included in the total population for* 1860.)

ILLINOIS.

	1860.	1870.
Adams	41,323	56,362
Alexander	4,707	10,564
Bond	9,815	13,152
Boone	11,678	12,942
Brown	9,938	12,205
Bureau	26,426	32,415
Calhoun	5,144	6,562
Carroll	11,733	16,705
Cass	11,325	11,580
Champaign	14,629	32,737
Christian	10,492	20,363
Clark	14,987	18,719
Clay	9,336	15,875
Clinton	10,941	16,285
Coles	14,203	25,235
Cook	144,954	349,966
Crawford	11,551	13,889
Cumberland	8,311	12,223
De Kalb	19,086	23,265
De Witt	10,820	14,768
Douglass	7,140	13,484
Du Page	14,701	16,685
Edgar	16,925	21,450
Edwards	5,454	7,565
Effingham	7,816	15,653
Fayette	11,189	19,638
Ford	1,070	9,103
Franklin	9,393	12,652
Fulton	33,338	38,291
Gallatin	8,055	11,134
Greene	16,093	20,277
Grundy	10,379	14,938
Hamilton	9,915	13,014
Hancock	29,061	35,935
Hardin	3,759	5,113
Henderson	9,501	12,582
Henry	20,660	35,506
Iroquois	12,325	25,782
Jackson	9,589	19,634
Jasper	8,364	11,234
Jefferson	12,965	17,864
Jersey	12,051	15,054
Jo Daviess	27,325	27,820
Johnson	9,342	11,248
Kane	30,062	39,091
Kankakee	15,412	24,352
Kendall	13,074	12,399
Knox	28,663	39,522
Lake	18,257	21,014
La Salle	48,332	60,792
Lawrence	9,214	12,533
Lee	17,051	27,171
Livingston	11,637	31,471
Logan	14,272	23,053
Macon	13,738	26,481
Macoupin	24,602	32,726
Madison	31,251	44,131
Marion	12,739	20,622
Marshall	13,437	16,956
Mason	10,931	16,184
Massac	6,213	9,581
McDonough	20,069	26,509
McHenry	22,089	23,762
McLean	28,772	53,988
Menard	9,584	11,735
Mercer	15,042	18,769
Monroe	12,832	12,982
Montgomery	13,979	25,314
Morgan	22,112	28,463
Moultrie	6,385	10,385
Ogle	22,888	27,492
Peoria	36,601	47,540
Perry	9,552	13,723
Piatt	6,127	10,953
Pike	27,249	30,768
Pope	6,742	11,437
Pulaski	3,943	8,752
Putnam	5,587	6,280
Randolph	17,205	20,859
Richland	9,711	12,803
Rock Island	21,005	29,783
Saline	9,331	12,714
Sangamon	32,274	46,352
Schuyler	14,684	17,419
Scott	9,069	10,530
Shelby	14,613	25,476
Stark	9,004	10,751
St. Clair	37,694	51,068
Stephenson	25,112	30,608
Tazewell	21,470	27,903
Union	11,181	16,518
Vermilion	19,800	30,388
Wabash	7,313	8,841
Warren	18,336	23,174
Washington	13,731	17,599
Wayne	12,223	19,758
White	12,403	16,846
Whitesides	18,737	27,503
Will	29,321	43,013
Williamson	12,205	17,329
Winnebago	24,491	29,301
Woodford	13,282	18,956
Total	1,711,951	2,539,891

INDIANA

	1860.	1870.
Adams	9,252	11,382
Allen	29,328	43,494
Bartholomew	17,865	21,133
Benton	2,809	5,615
Blackford	4,122	6,272
Boone	16,753	22,593
Brown	6,507	8,681
Carroll	13,489	16,152
Cass	16,843	24,193
Clarke	20,502	24,770
Clay	12,161	19,084
Clinton	14,505	17,330
Crawford	8,226	9,851
Daviess	13,323	16,747
Dearborn	24,406	24,116
Decatur	17,294	19,053
De Kalb	13,880	17,167
Delaware	15,753	19,039
Dubois	10,394	12,597
Elkhart	20,986	26,026
Fayette	10,225	10,476
Floyd	20,183	23,300
Fountain	15,566	16,389
Franklin	19,549	20,223
Fulton	9,422	12,726
Gibson	14,532	17,371
Grant	15,797	18,487
Greene	16,041	19,514
Hamilton	17,310	20,882
Hancock	12,802	15,123
Harrison	18,521	19,913
Hendricks	16,953	20,277
Henry	20,119	22,986
Howard	12,521	15,847
Huntington	14,867	19,036
Jackson	16,286	18,974
Jasper	4,291	6,354
Jay	11,399	15,000
Jefferson	25,036	29,741
Jennings	14,749	16,218
Johnson	14,854	18,366
Knox	16,056	21,562
Kosciusko	17,418	23,531
La Grange	11,366	14,148
Lake	9,145	12,339
La Porte	22,919	27,062
Lawrence	13,692	14,628
Madison	16,518	22,770
Marion	39,855	71,939
Marshall	12,722	20,211
Martin	8,975	11,103
Miami	16,851	21,052
Monroe	12,847	14,168
Montgomery	20,888	23,765
Morgan	16,110	17,528
Newton	2,360	5,829
Noble	14,915	20,389
Ohio	5,462	5,837
Orange	12,076	13,497
Owen	14,376	16,137
Parke	15,538	18,166
Perry	11,847	14,801
Pike	10,078	13,779
Porter	10,313	13,942
Posey	16,167	19,185
Pulaski	5,711	7,801
Putnam	20,681	21,514
Randolph	18,997	22,862
Ripley	19,054	20,077
Rush	16,193	17,626
Scott	7,303	7,873
Shelby	19,569	21,892
Spencer	14,550	17,998
Starke	2,195	3,888
Steuben	10,374	12,854
St. Joseph	18,455	25,322
Sullivan	15,064	18,453
Switzerland	12,698	12,134
Tippecanoe	25,726	33,515
Tipton	8,170	11,953
Union	7,109	6,341
Vanderburgh	20,552	33,145
Vermillion	9,422	10,840
Vigo	22,517	33,549
Wabash	17,547	21,305
Warren	10,057	10,204
Warrick	13,261	17,653
Washington	17,909	18,495
Wayne	29,558	34,048
Wells	10,844	13,585
White	8,258	10,554
Whitley	10,730	14,399
Total	1,350,428	1,680,637

IOWA.

	1860.	1870.
Adair	984	3,982
Adams	1,533	4,614
Allamakee	12,237	17,868
Appanoose	11,931	16,456
Audubon	454	1,212
Benton	8,496	22,454
Black Hawk	8,244	21,706
Boone	4,232	14,584
Bremer	4,915	12,528
Buchanan	7,906	17,034
Buena Vista	57	1,585
Butler	3,724	9,951
Calhoun	147	1,602
Carroll	281	2,451
Cass	1,612	5,464
Cedar	12,949	19,731
Cerro Gordo	940	4,722
Cherokee	58	1,967
Chickasaw	4,336	10,180
Clarke	5,427	8,735
Clay	52	1,523
Clayton	20,728	27,771
Clinton	18,938	35,357
Crawford	383	2,530
Dallas	5,244	12,019
Davis	13,764	15,565
Decatur	8,677	12,018
Delaware	11,024	17,432
Des Moines	19,611	27,256
Dickinson	180	1,389
Dubuque	31,164	38,969
Emmett	105	1,392
Fayette	12,073	16,973
Floyd	3,744	10,768
Franklin	1,309	4,738
Fremont	5,074	11,174
Greene	1,374	4,627
Grundy	793	6,399
Guthrie	3,058	7,061
Hamilton	1,699	6,055
Hancock	179	999
Hardin	5,440	13,684
Harrison	3,621	8,931
Henry	18,701	21,463
Howard	3,168	6,282
Humboldt	332	2,596
Ida	43	220
Iowa	8,029	16,644
Jackson	18,493	22,619
Jasper	9,883	22,116
Jefferson	15,038	17,839
Johnson	17,573	24,898
Jones	13,306	19,731
Keokuk	13,271	19,434
Kossuth	416	3,351
Lee	29,232	37,210
Linn	18,947	28,852
Louisa	10,370	12,877
Lucas	5,766	10,388
Lyon	....	221
Madison	7,339	13,884
Mahaska	14,816	22,508
Marion	16,813	24,436
Marshall	6,015	17,576
Mills	4,481	8,718
Mitchell	3,409	9,582
Monona	832	3,654
Monroe	8,612	12,724
Montgomery	1,256	5,934
Muscatine	16,444	21,688
O'Brien	8	715
Osceola	....	....
Page	4,419	9,975
Palo Alto	132	1,336
Plymouth	148	2,199
Pocahontas	103	1,446
Polk	11,625	27,857
Pottawattamie	4,968	16,893
Poweshiek	5,668	15,581
Ringgold	2,923	5,691
Sac	246	1,411
Scott	25,959	38,599
Shelby	818	2,540
Sioux	10	576
Story	4,051	11,651
Tama	5,285	16,131
Taylor	3,590	6,989
Union	2,012	5,986
Van Buren	17,081	17,672
Wapello	14,518	22,346
Warren	10,281	17,980
Washington	14,235	18,952
Wayne	6,409	11,287
Webster	2,504	10,484
Winnebago	168	1,562
Winneshiek	13,942	23,570
Woodbury	1,119	6,172
Worth	756	2,892
Wright	653	2,392
Total	674,913	1,191,792

KANSAS.

	1860.	1870.
Allen	3,082	7,022
Anderson	2,400	5,220
Atchison	7,729	15,507
Barton	....	2
Bourbon	6,101	15,076
Breckenridge	3,197	....
Brown	2,607	6,823
Butler	437	3,035
Chase	808	1,975
Cherokee	....	11,038
Clay	103	2,942
Cloud	....	2,323
Coffey	2,842	6,201
Cowley	....	1,175
Crawford	....	8,160
Davis	1,163	5,526
Dickinson	378	3,043
Doniphan	8,083	13,969
Dorn	88	....
Douglass	8,637	20,592
Ellis	....	1,336
Ellsworth	....	1,185
Ford	....	427
Franklin	3,030	10,385
Godfrey	19	....
Greenwood	759	3,484
Howard	....	2,794
Hunter	158	....
Jackson	1,936	6,053
Jefferson	4,459	12,526
Jewell	....	207
Johnson	4,364	13,684
Labette	....	9,973
Leavenworth	12,606	32,444
Lincoln	....	516
Linn	6,336	12,174
Lykins	4,980	....
Lyon	....	8,014
Madison	630	....
Marion	74	768
Marshall	2,280	6,901
McGhee	1,501	....
McPherson	....	738
Miami	....	11,725
Mitchell	....	485
Montgomery	....	7,564
Morris	770	2,225
Nemaha	2,436	7,339
Neosho	....	10,206
Ness	....	2
Osage	1,113	7,648
Osborne	....	33
Ottoe	238	....
Ottawa	....	2,127
Pawnee	....	179

	1860	1870.
Pottawattamie	1,529	7,848
Republic	....	1,281
Rice	....	5
Riley	1,224	5,105
Russell	....	156
Saline	....	4,246
Sedgwick	....	1,095
Shawnee	3,513	13,121
Smith	....	66
Sumner	....	22
Trego	....	166
Wabaunsee	1,023	3,362
Wallace	....	538
Washington	383	4,081
Wilson	27	6,694
Woodson	1,488	3,827
Wyandotte	2,609	10,015
Total	107,206	364,399

(2 *slaves included in the total population for* 1860.)

KENTUCKY.

	1860.	1870.
Adair	9,509	11,065
Allen	9,187	10,296
Anderson	7,404	5,449
Ballard	8,692	12,576
Barren	16,665	17,780
Bath	12,113	10,145
Boone	11,196	10,696
Bourbon	14,860	14,863
Boyd	6,044	8,573
Boyle	9,304	9,515
Bracken	11,021	11,409
Breathitt	4,980	5,672
Breckenridge	13,236	13,440
Bullitt	7,289	7,781
Butler	7,927	9,404
Caldwell	9,318	10,826
Callaway	9,915	9,410
Campbell	20,909	27,406
Carroll	6,578	6,189
Carter	8,516	7,509
Casey	6,466	8,881
Christian	21,627	23,227
Clark	11,484	10,882
Clay	6,652	8,297
Clinton	5,781	6,497
Crittenden	8,796	9,381
Cumberland	7,340	7,690
Daviess	15,549	20,714
Edmondson	4,645	4,459
Elliott	....	4,443
Estill	6,886	9,198
Fayette	22,599	26,656
Fleming	12,489	13,398
Floyd	6,388	7,877
Franklin	12,694	15,300
Fulton	5,317	6,161
Gallatin	5,056	5,074
Garrard	10,531	10,376
Grant	8,356	9,529
Graves	16,233	19,398
Grayson	7,982	11,580
Green	8,806	9,379
Greenup	8,760	11,463
Hancock	6,213	6,591
Hardin	15,189	15,705
Harlan	5,494	4,415
Harrison	13,770	12,993
Hart	10,348	13,687
Henderson	14,262	18,457
Henry	11,949	11,066
Hickman	7,008	8,453
Hopkins	11,875	13,827
Jackson	3,087	4,547
Jefferson	89,404	118,953
Jessamine	9,465	8,638
John Bell	....	3,731
Johnson	5,306	7,494
Kenton	25,467	36,096
Knox	7,707	8,294
La Rue	6,891	8,235
Laurel	5,488	6,016
Lawrence	7,601	8,497
Lee	....	3,055
Letcher	3,904	4,608
Lewis	8,361	9,115
Lincoln	10,647	10,947
Livingston	7,213	8,200
Logan	19,021	20,429
Lyon	5,307	6,233
Madison	17,207	19,543
Magoffin	3,485	4,684
Marion	12,593	12,838
Marshall	6,982	9,455
Mason	18,222	18,126
McCracken	10,360	13,988
McLean	6,144	7,614
Meade	8,898	9,485
Menifee	....	1,986
Mercer	13,701	13,144
Metcalfe	6,745	7,934
Monroe	8,551	9,231
Montgomery	7,859	7,557
Morgan	9,237	5,975
Muhlenberg	10,725	12,638
Nelson	15,799	14,804
Nicholas	11,030	9,129
Ohio	12,209	15,561
Oldham	7,283	9,027
Owen	12,719	14,309
Owsley	5,335	3,889
Pendleton	10,443	14,030
Perry	3,950	4,274
Pike	7,384	9,562
Powell	2,257	2,599
Pulaski	17,201	17,670
Robertson	....	5,399
Rock Castle	5,343	7,145
Rowan	2,282	2,991
Russell	6,024	5,809
Scott	14,417	11,607
Shelby	16,433	15,733
Simpson	8,146	9,573
Spencer	6,188	5,956
Taylor	7,481	8,226
Todd	11,575	12,612
Trigg	11,051	13,686
Trimble	5,880	5,577
Union	12,791	13,640
Warren	17,320	21,742
Washington	11,575	12,464
Wayne	10,259	10,602
Webster	7,533	10,937
Whiteley	7,762	8,278

	1860.	1870.
Wolfe	....	3,603
Woodford	11,219	8,240
Total	1,155,684	1,321,011

(225,483 *slaves included in the total population for* 1860.)

LOUISIANA.

	1860.	1870.
Ascension	11,484	11,577
Assumption	15,379	13,234
Avoyelles	13,167	12,926
Bienville	11,000	10,636
Bossier	11,348	12,675
Caddo	12,140	21,714
Calcasieu	5,928	6,733
Caldwell	4,833	4,820
Cameron	....	1,591
Carroll	18,052	10,110
Catahoula	11,651	8,475
Claiborne	16,848	20,240
Concordia	13,805	9,977
De Soto	13,298	14,962
E. Baton Rouge	16,046	17,816
East Feliciana	14,697	13,499
Franklin	6,162	5,078
Grant	....	4,517
Iberia	....	9,042
Iberville	14,661	12,347
Jackson	9,465	7,646
Jefferson	15,372	17,767
Lafayette	9,003	10,388
Lafourche	14,044	14,719
Livingston	4,431	4,026
Madison	14,133	8,600
Morehouse	10,357	9,387
Natchitoches	16,699	18,265
Orleans	174,491	191,418
Ouachita	4,727	11,582
Plaquemines	8,494	10,552
Point Coupée	17,718	12,981
Rapides	25,360	18,015
Richland	....	5,110
Sabine	5,828	6,456
St. Bernard	4,076	3,553
St. Charles	5,297	4,867
St. Helena	7,130	5,423
St. James	11,499	10,152
St. John Baptist	7,930	6,762
St. Landry	23,104	25,553
St. Martin	12,674	9,370
St. Mary	16,816	13,860
St. Tammany	5,406	5,586
Tangipahoa	....	7,928
Tensas	16,078	12,419
Terrebonne	12,091	12,451
Union	10,389	11,685
Vermillion	4,324	4,528
Washington	4,708	3,330
W. Baton Rouge	7,312	5,114
West Feliciana	11,671	10,499
Winn	6,876	4,954
Total	708,002	726,915

(331,726 *slaves included in the total population for* 1860.)

MAINE.

	1860.	1870.
Androscoggin	29,726	35,866
Aroostook	22,479	29,609
Cumberland	75,591	82,021
Franklin	20,403	18,807
Hancock	37,757	36,495
Kennebec	55,655	53,203
Knox	32,716	30,823
Lincoln	27,860	25,597
Oxford	36,698	33,488
Penobscot	72,731	75,150
Piscataquis	15,032	14,403
Sagadahoc	21,790	18,803
Somerset	36,753	34,611
Waldo	38,447	34,522
Washington	42,534	43,343
York	62,107	60,174
Total	628,279	626,915

MARYLAND.

	1860.	1870.
Alleghany	28,348	38,536
Anne Arundel	23,900	24,457
Baltimore	266,553	330,741
Calvert	10,447	9,865
Caroline	11,129	12,101
Carroll	24,533	28,619
Cecil	23,862	25,871
Charles	16,517	15,738
Dorchester	20,461	19,458
Frederick	46,591	47,572
Harford	23,415	22,605
Howard	13,338	14,150
Kent	13,267	17,102
Montgomery	18,322	20,563
Prince George's	23,327	21,138
Queen Anne	15,961	16,171
Saint Mary's	15,213	14,944
Somerset	24,992	18,190
Talbot	14,795	16,137
Washington	31,417	34,712
Wicomico	....	15,802
Worcester	20,661	16,419
Total	687,049	780,894

(87,189 *slaves included in the total population for* 1860.)

MASSACHUSETTS.

	1860.	1870.
Barnstable	35,990	32,774
Berkshire	55,120	64,827
Bristol	93,794	102,886
Dukes	4,403	3,787
Essex	165,611	200,843
Franklin	31,434	32,635
Hampden	57,366	78,409
Hampshire	37,823	44,388
Middlesex	216,354	274,353
Nantucket	6,094	4,123
Norfolk	109,950	89,443
Plymouth	64,768	65,365
Suffolk	192,700	270,802
Worcester	159,659	192,716
Total	1,231,066	1,457,351

MICHIGAN.

	1860.	1870.
Alcona	185	696
Allegan	16,807	32,105
Alpena	290	2,756
Antrim	179	1,985
Barry	13,858	22,199
Bay	3,164	15,900
Benzie	....	2,184
Berrien	22,378	35,104
Branch	20,981	26,226
Calhoun	29,564	36,569
Cass	17,721	21,094
Charlevoix	....	1,724
Cheboygan	517	2,196
Chippewa	1,603	1,689
Clare	....	366
Clinton	13,916	22,845
Delta	1,172	2,542
Eaton	16,476	25,171
Emmet	1,149	1,211
Genesee	22,498	33,900
Gladwin	14	....
Grand Traverse	1,286	4,443
Gratiot	4,042	11,810
Hillsdale	25,675	31,684
Houghton	9,234	13,879
Huron	3,165	9,049
Ingham	17,435	25,268
Ionia	16,682	27,681
Iosco	175	3,163
Isabella	1,443	4,113
Jackson	26,671	36,047
Kalamazoo	24,646	32,054
Kalkaska	....	424
Kent	30,716	50,403
Keweenaw	....	4,205
Lake	....	548
Lapeer	14,754	21,345
Leelanaw	2,158	4,576
Lenawee	38,112	45,595
Livingston	16,851	19,336
Mackinac	....	1,716
Macomb	22,843	27,616
Manistee	975	6,074
Manitou	1,042	891
Marquette	2,821	15,033
Mason	831	3,263
Mecosta	970	5,642
Menominee	....	1,791
Michilimackinac	1,938	....
Midland	787	3,285
Missaukee	....	130
Monroe	21,593	27,483
Montcalm	3,968	13,629
Montmorenci	....	....
Muskegon	3,947	14,894
Newaygo	2,760	7,294
Oakland	38,261	40,867
Oceana	1,816	7,222
Ogemaw	....	12
Ontonagon	4,568	2,845
Osceola	27	2,093
Oscoda	....	70
Otsego	....	....
Ottawa	13,215	26,651
Presque Isle	26	355
Roscommon	....	....
Saginaw	12,693	39,097
Sanilac	7,599	14,562
Schoolcraft	78	....
Shiawassee	12,349	20,858
St. Clair	26,604	36,661
St. Joseph	21,262	26,275
Tuscola	4,886	13,714
Van Buren	15,224	28,829
Washtenaw	35,686	41,434
Wayne	75,547	119,038
Wexford	....	650
Total	749,113	1,184,059

MINNESOTA.

	1860.	1870.
Aitkin	2	178
Anoka	2,106	3,940
Becker	....	308
Beltrami	....	80
Benton	627	1,558
Big Stone	....	24
Blue Earth	4,803	17,302
Breckenridge	79	....
Brown	2,339	6,396
Buchanan	26	....
Carlton	51	286
Carver	5,106	11,586
Cass	150	380
Chippewa	....	1,467
Chisago	1,743	4,358
Clay	....	92
Cottonwood	12	534
Crow Wing	269	200
Dakota	9,093	16,312
Dodge	3,797	8,598
Douglas	195	4,239
Faribault	1,335	9,940
Fillmore	13,542	24,887
Freeborn	3,367	10,578
Goodhue	8,977	22,618
Grant	....	340
Hennepin	12,849	31,566
Houston	6,645	14,936
Isanti	284	2,035
Itasca	51	96
Jackson	181	1,825
Kanabec	30	93
Kandiyohi	76	1,760
Lac Qui Parle	....	145
Lake	248	135
Le Sueur	5,318	11,607
Lincoln	....	....
Manomin	136	....
Martin	151	3,867
McLeod	1,286	5,643
McPhail	....	....
Meeker	928	6,090
Mille Lac	73	1,109
Monongalia	350	3,161
Morrison	618	1,681
Mower	3,217	10,447
Murray	29	209
Nicollet	3,773	8,362
Nobles	35	117
Olmsted	9,524	19,793
Otter Tail	240	1,968
Pembina	1,612	64
Pierce	11	....
Pine	92	648
Pipestone	23	....
Polk	240	....
Pope	....	2,691
Ramsey	12,150	23,085
Redwood	....	1,829
Renville	245	3,219
Rice	7,543	16,083
Rock	....	138
Scott	4,595	11,042
Sherburne	723	2,050
Sibley	3,609	6,725
Stearns	4,505	14,206
Steele	2,863	8,271
Stevens	....	174
St. Louis	406	4,561
Todd	430	2,036
Toombs	40	....
Traverse	....	13
Wabashaw	7,228	15,859
Wadena	....	6
Waseca	2,601	7,854
Washington	6,123	11,809
Watonwan	....	2,426
Wilkin	40	295
Winona	9,208	22,319
Wright	3,729	9,457
Total	172,023	439,706

MISSISSIPPI.

	1860.	1870.
Adams	20,165	19,084
Alcorn	....	10,431
Amite	12,336	10,973
Attala	14,169	14,776
Bolivar	10,471	9,732
Calhoun	9,518	10,561
Carroll	22,035	21,047
Chickasaw	16,426	19,899
Choctaw	15,722	16,988
Claiborne	15,679	13,386
Clarke	10,771	7,505
Coahoma	6,606	7,144
Copiah	15,398	20,608
Covington	4,408	4,753
De Soto	23,336	32,021
Franklin	8,265	7,498
Greene	2,232	2,038
Grenada	....	10,571
Hancock	3,139	4,239
Harrison	4,819	5,795
Hinds	31,339	30,488
Holmes	17,791	19,370
Issaquena	7,831	6,887
Itawamba	17,695	7,812
Jackson	4,122	4,362
Jasper	11,007	10,884
Jefferson	15,349	13,848
Jones	3,323	3,313
Kemper	11,682	12,920
Lafayette	16,125	18,802
Lauderdale	13,313	13,462
Lawrence	9,213	6,720
Leake	9,324	8,496
Lee	....	15,955
Lincoln	....	10,184
Lowndes	23,625	30,502
Madison	23,382	20,948
Marion	4,686	4,211
Marshall	28,823	29,416
Monroe	21,283	22,631
Neshoba	8,343	7,439
Newton	9,661	10,067
Noxubee	20,667	20,905
Oktibbeha	12,977	14,891
Panola	13,794	20,754
Perry	2,606	2,694
Pike	11,135	11,303
Pontotoc	22,113	12,525
Prentiss	....	9,348
Rankin	13,635	12,977
Scott	8,139	7,847
Simpson	6,080	5,718
Smith	7,638	7,126
Sunflower	5,019	5,015
Tallahatchie	7,890	7,852
Tippah	22,550	20,727
Tishemingo	24,149	7,350
Tunica	4,366	5,358
Warren	20,696	26,769
Washington	15,679	14,569
Wayne	3,691	4,206
Wilkinson	15,933	12,705
Winston	9,811	8,984
Yalabusha	16,952	13,254
Yazoo	22,373	17,279
Total	791,305	827,922

(436,631 *slaves included in the total population for* 1860.)

MISSOURI.

	1860.	1870.
Adair	8,531	11,448
Andrew	11,850	15,137
Atchison	4,649	8,440
Audrain	8,075	12,307
Barry	7,995	10,373
Barton	1,817	5,087
Bates	7,215	15,960
Benton	9,072	11,322
Bollinger	7,371	8,162
Boone	19,486	20,765
Buchanan	23,861	35,109
Butler	2,891	4,298
Caldwell	5,034	11,390
Callaway	17,449	19,202
Camden	4,975	6,108
Cape Girardeau	15,547	17,558
Carroll	9,763	17,446
Carter	1,235	1,455
Cass	9,794	19,296
Cedar	6,637	9,474
Chariton	12,562	19,136
Christian	5,491	6,707
Clarke	11,684	13,667
Clay	13,023	15,564
Clinton	7,848	14,063
Cole	9,697	10,292
Cooper	17,356	20,692
Crawford	5,823	7,982
Dade	7,072	8,683
Dallas	5,892	8,383
Daviess	9,606	14,410
De Kalb	5,224	9,858
Dent	5,654	6,357
Douglass	2,414	3,915
Dunklin	5,026	5,982
Franklin	18,085	30,098
Gasconade	8,727	10,093
Gentry	11,980	11,607
Greene	13,186	21,549
Grundy	7,887	10,567
Harrison	10,626	14,635
Henry	9,866	17,401
Hickory	4,705	6,452
Holt	6,550	11,652
Howard	15,946	17,233
Howell	3,169	4,218
Iron	5,842	6,278
Jackson	22,913	55,041
Jasper	6,883	14,928
Jefferson	10,344	15,380
Johnson	14,644	24,648
Knox	8,727	10,974
Laclede	5,182	9,380
Lafayette	20,098	22,623
Lawrence	8,846	13,067
Lewis	12,286	15,114
Lincoln	14,210	15,960
Linn	9,112	15,900
Livingston	7,417	16,730
Macon	14,346	23,230
Madison	5,664	5,849
Maries	4,901	5,916
Marion	18,838	23,780
McDonald	4,038	5,226
Mercer	9,300	11,557
Miller	6,812	6,616
Mississippi	4,859	4,982
Moniteau	10,124	11,375
Monroe	14,785	17,149
Montgomery	9,718	10,405
Morgan	8,202	8,434
New Madrid	5,654	6,357
Newton	9,319	12,821
Nodaway	5,252	14,751
Oregon	3,009	3,287
Osage	7,879	10,793
Ozark	2,447	3,363
Pemiscot	2,962	2,059
Perry	9,128	9,877
Pettis	9,392	18,706
Phelps	5,714	10,506
Pike	18,417	23,076
Platte	18,350	17,352
Polk	9,995	12,445
Pulaski	3,835	4,714
Putnam	9,207	11,217
Ralls	8,592	10,510
Randolph	11,407	15,908
Ray	14,092	18,700
Reynolds	3,173	3,756
Ripley	3,747	3,175
Saline	14,699	21,672
Schuyler	6,697	8,820
Scotland	8,873	10,670
Scott	5,247	7,317
Shannon	2,284	2,339
Shelby	7,301	10,119
St. Charles	16,523	21,304
St. Clair	6,812	6,742
Ste. Genevieve	8,029	8,384
St. Francois	7,249	9,742
St. Louis	190,524	351,189
Stoddard	7,877	8,535
Stone	2,400	3,253
Sullivan	9,198	11,907
Taney	3,576	4,407
Texas	6,067	9,618
Vernon	4,850	11,247
Warren	8,839	9,673
Washington	9,723	11,719
Wayne	5,629	6,068
Webster	7,099	10,434
Worth	....	5,004
Wright	4,508	5,684
Total	1,182,012	1,721,295

(114,931 *slaves included in the total population for* 1860.)

NEBRASKA.

	1860.	1870.
Adams	....	19
Blackbird	....	31
Buffalo	114	193
Burt	388	2,847
Butler	27	1,290
Calhoun	41	....
Cass	3,369	8,151
Cedar	246	1,032
Cheyenne	....	190
Clay	165	54
Colfax	....	1,424
Cuming	67	2,964
Dakota	819	2,040
Dawson	16	103
Dixon	247	1,345
Dodge	309	4,212
Douglass	4,328	19,982
Fillmore	....	238
Fort Randall	353	....
Franklin	....	26
Gage	421	3,359
Grant	....	484
Greene	16	....
Hall	116	1,057
Hamilton	....	130
Harrison	....	631
Jackson	....	9
Jefferson	528	2,440
Johnson	528	3,429
Jones	122	....
Kearney	474	58
Lancaster	153	7,074
L'Eau qui Court	152	261
Lincoln	....	17
Lyon	....	78
*Madison	....	1,133
Merrick	109	557
Monroe	....	235
Nemaha	3,139	7,593
Nuckolls	22	8
Otoe	4,211	12,345
Pawnee	882	4,171
Pierce	....	152
*Platte	782	1,899
Polk	19	136
Richardson	2,835	9,780
Saline	39	3,106
Sarpy	1,201	2,913
Saunders	....	4,547
Seward	....	2,953
Shorter	117	....
Stanton	....	636
Taylor	....	97
Washington	1,249	4,452
Wayne	....	182
Webster	....	16
York	....	604
Unorganized Ter	1,765	310
Total	28,841	122,993

* Madison and Platte reported together in 1860.

(15 *slaves included in the total population for* 1860.)

NEVADA.

	1860.	1870.
Carson	6,712	....
Churchill	....	196
Douglas	....	1,215
Elko	....	3,447
Esmeralda	....	1,553
Humboldt	40	1,916
Lander	....	2,815
Lincoln	....	2,985
Lyon	....	1,837
Nye	....	1,087
Ormsby	....	3,668
Roop	....	133
St. Mary's	105	....
Storey	....	11,359
Washoe	....	3,091
White Pine	....	7,189
Total	6,857	42,491

NEW HAMPSHIRE

	1860.	1870.
Belknap	18,549	17,681
Carroll	20,465	17,332
Cheshire	27,434	27,265
Coos	13,161	14,932
Grafton	42,260	39,103
Hillsborough	62,140	64,238
Merrimack	41,408	42,151
Rockingham	50,122	47,297
Strafford	31,493	30,243
Sullivan	19,041	18,058
Total	326,073	318,300

NEW JERSEY

	1860.	1870.
Atlantic	11,786	14,093
Bergen	21,618	30,122
Burlington	49,730	53,639
Camden	34,457	46,193
Cape May	7,130	8,349
Cumberland	22,605	34,665
Essex	98,877	143,839
Gloucester	18,444	21,562
Hudson	62,717	129,067
Hunterdon	33,654	36,963
Mercer	37,419	46,386
Middlesex	34,812	45,029
Monmouth	39,346	46,195
Morris	34,677	43,137
Ocean	11,176	13,628
Passaic	29,013	46,416
Salem	22,458	23,940
Somerset	22,057	23,510
Sussex	23,846	23,168
Union	27,780	41,859
Warren	28,433	34,336
Total	672,035	906,096

(18 *slaves included in the total population for* 1860.)

NEW YORK.

	1860.	1870.
Albany	113,917	133,052
Allegany	41,881	40,814
Broome	35,906	44,103
Cattaraugus	43,886	43,909
Cayuga	55,767	59,550
Chautauqua	58,422	59,327
Chemung	26,917	35,281
Chenango	40,934	40,564
Clinton	45,735	47,947
Columbia	47,172	47,044
Cortland	26,294	25,173
Delaware	42,465	42,972
Dutchess	64,941	74,041
Erie	141,971	178,699
Essex	28,214	29,042
Franklin	30,837	30,271
Fulton	24,162	27,064
Genesee	32,189	31,606
Greene	31,930	31,832
Hamilton	3,024	2,960
Herkimer	40,561	39,929
Jefferson	69,825	65,415
Kings	279,122	419,921
Lewis	28,580	28,699
Livingston	39,546	38,309
Madison	43,545	43,522
Monroe	100,648	117,868
Montgomery	30,866	34,457
New York	813,669	942,292
Niagara	50,399	50,437
Oneida	105,202	110,008
Onondaga	90,686	104,183
Ontario	44,563	45,108
Orange	63,812	80,902
Orleans	28,717	27,689
Oswego	75,958	77,941
Otsego	50,157	48,967
Putnam	14,002	15,420
Queens	57,391	73,803
Rensselaer	86,328	99,549
Richmond	25,492	33,029
Rockland	22,492	25,213
Saratoga	51,729	51,529
Schenectady	20,002	21,347
Schoharie	34,469	33,340
Schuyler	18,840	18,989
Seneca	28,138	27,823
Steuben	66,690	67,717
St. Lawrence	83,689	84,826
Suffolk	43,275	46,924
Sullivan	32,385	34,550
Tioga	28,748	30,572
Tompkins	31,409	33,178
Ulster	76,381	84,075
Warren	21,434	22,592
Washington	45,904	49,568
Wayne	47,762	47,710

	1860.	1870.
Westchester	99,497	131,348
Wyoming	31,968	29,164
Yates	20,290	19,595
Total	3,880,735	4,382,759

NORTH CAROLINA.

	1860.	1870.
Alamance	11,852	11,874
Alexander	6,022	6,868
Alleghany	3,590	3,691
Anson	13,664	12,428
Ashe	7,956	9,573
Beaufort	14,766	13,011
Bertie	14,319	12,950
Bladen	11,995	12,831
Brunswick	8,406	7,754
Buncombe	12,654	15,412
Burke	9,237	9,777
Cabarrus	10,546	11,954
Caldwell	7,497	8,476
Camden	5,343	5,361
Carteret	8,186	9,010
Caswell	16,215	16,081
Catawba	10,729	10,984
Chatham	19,101	19,723
Cherokee	9,166	8,080
Chowan	6,842	6,450
Clay	....	2,461
Cleveland	12,348	12,696
Columbus	8,597	8,474
Craven	16,268	20,516
Cumberland	16,369	17,035
Currituck	7,415	5,131
Dare	....	2,778
Davidson	16,601	17,414
Davie	8,494	9,620
Duplin	15,784	15,542
Edgecombe	17,376	22,970
Forsyth	12,692	13,050
Franklin	14,107	14,134
Gaston	9,307	12,602
Gates	8,443	7,724
Granville	23,396	24,831
Greene	7,925	8,687
Guilford	20,056	21,736
Halifax	19,442	20,408
Harnett	8,039	8,895
Haywood	5,801	7,921
Henderson	10,448	7,706
Hertford	9,504	9,273
Hyde	7,732	6,445
Iredell	15,347	16,931
Jackson	5,515	6,683
Johnston	15,656	16,897
Jones	5,730	5,002
Lenoir	10,220	10,434
Lincoln	8,195	9,573
Macon	6,004	6,615
Madison	5,908	8,192
Martin	10,195	9,647
McDowell	7,120	7,592
Mecklenburg	17,374	24,299
Mitchell	....	4,705
Montgomery	7,649	7,487
Moore	11,427	12,040
Nash	11,687	11,077
New Hanover	21,715	27,978
Northampton	13,372	14,749
Onslow	8,856	7,569
Orange	16,947	17,507
Pasquotank	8,940	8,131
Perquimans	7,238	7,945
Person	11,221	11,170
Pitt	16,080	17,276
Polk	4,043	4,319
Randolph	16,793	17,551
Richmond	11,009	12,882
Robeson	15,489	16,262
Rockingham	16,746	15,708
Rowan	14,589	16,810
Rutherford	11,573	13,121
Sampson	16,624	16,436
Stanley	7,801	8,315
Stokes	10,402	11,208
Surry	10,380	11,252
Transylvania	....	3,536
Tyrrell	4,944	4,173
Union	11,202	12,217
Wake	28,627	35,617
Warren	15,726	17,768
Washington	6,357	6,516
Watauga	4,957	5,287
Wayne	14,905	18,144
Wilkes	14,749	15,539
Wilson	9,720	12,258
Yadkin	10,714	10,697
Yancey	8,655	5,909
Total	992,622	1,071,361

(331,059 *slaves included in the total population for* 1860.)

OHIO.

	1860.	1870.
Adams	20,309	20,750
Allen	19,185	23,623
Ashland	22,951	21,933
Ashtabula	31,814	32,517
Athens	21,364	23,768
Auglaize	17,187	20,041
Belmont	36,398	39,714
Brown	29,958	30,802
Butler	35,840	39,912
Carroll	15,738	14,491
Champaign	22,698	24,188
Clark	25,300	32,070
Clermont	33,034	34,268
Clinton	21,461	21,914
Columbiana	32,836	38,299
Coshocton	25,032	23,600
Crawford	23,881	25,556
Cuyahoga	78,033	132,010
Darke	26,009	32,278
Defiance	11,886	15,719
Delaware	23,902	25,175
Erie	24,474	28,188
Fairfield	30,538	31,138
Fayette	15,935	17,170
Franklin	50,361	63,019
Fulton	14,043	17,789
Gallia	22,043	25,545
Geauga	15,817	14,190
Greene	26,197	28,038
Guernsey	24,474	23,838
Hamilton	216,410	260,370
Hancock	22,886	23,847
Hardin	13,570	18,714
Harrison	19,110	18,682
Henry	8,901	14,028
Highland	27,773	29,133
Hocking	17,057	17,925
Holmes	20,589	18,177
Huron	29,616	28,532
Jackson	17,941	21,759
Jefferson	26,115	29,188
Knox	27,735	26,333
Lake	15,576	15,935
Lawrence	23,249	31,380
Licking	37,011	35,756
Logan	20,996	23,028
Lorain	29,744	30,308
Lucas	25,831	46,722
Madison	13,015	15,633
Mahoning	25,894	31,001
Marion	15,490	16,184
Medina	22,517	20,092
Meigs	26,534	31,465
Mercer	14,104	17,254
Miami	29,959	32,740
Monroe	25,741	25,779
Montgomery	52,230	64,006
Morgan	22,119	20,363
Morrow	20,445	18,583
Muskingum	44,416	44,886
Noble	20,751	19,949
Ottawa	7,016	13,364
Paulding	4,945	8,544
Perry	19,678	18,453
Pickaway	23,469	24,875
Pike	13,643	15,447
Portage	24,208	24,584
Preble	21,820	21,809
Putnam	12,808	17,081
Richland	31,158	32,516
Ross	35,071	37,097
Sandusky	21,429	25,503
Scioto	24,297	29,302
Seneca	30,868	30,827
Shelby	17,493	20,748
Stark	42,978	52,508
Summit	27,344	34,674
Trumbull	30,656	38,659
Tuscarawas	32,463	33,840
Union	16,507	18,730
Van Wert	10,238	15,823
Vinton	13,631	15,027
Warren	26,902	26,689
Washington	36,268	40,609
Wayne	32,483	35,116
Williams	16,633	20,991
Wood	17,886	24,596
Wyandot	15,596	18,553
Total	2,339,511	2,665,260

OREGON.

	1860.	1870.
Baker	....	2,804
Benton	3,074	4,584
Clackamas	3,466	5,993
Clatsop	498	1,255
Columbia	532	863
Coos	445	1,644
Curry	393	504
Douglas	3,203	6,066
Grant	....	2,251
Jackson	3,736	4,778
Josephine	1,623	1,204
Lane	4,780	6,426
Linn	6,772	8,717
Marion	7,088	9,965
Multnomah	4,150	11,510
Polk	3,625	4,701
Tillamook	95	408
Umatilla	....	2,916
Umpqua	1,250	....
Union	....	2,552
Wasco	1,689	2,509
Washington	2,801	4,261
Yam Hill	3,245	5,012
Total	52,465	90,923

PENNSYLVANIA.

	1860.	1870.
Adams	28,006	30,315
Allegheny	178,831	262,204
Armstrong	35,797	43,382
Beaver	29,140	36,148
Bedford	26,736	29,635
Berks	93,818	106,701
Blair	27,829	38,051
Bradford	48,734	53,204
Bucks	63,578	64,336
Butler	35,594	36,510
Cambria	29,155	36,569
Cameron	....	4,273
Carbon	21,033	28,144
Centre	27,000	34,418
Chester	74,578	77,805
Clarion	24,988	26,537
Clearfield	18,759	25,741
Clinton	17,723	23,211
Columbia	25,065	28,766
Crawford	48,755	63,832
Cumberland	40,098	43,912
Dauphin	46,756	60,740
Delaware	30,597	39,403
Elk	5,915	8,488
Erie	49,432	65,973
Fayette	39,909	43,284
Forest	898	4,010
Franklin	42,126	45,365
Fulton	9,131	9,360
Greene	24,343	25,887
Huntingdon	28,100	31,251
Indiana	33,687	36,138
Jefferson	18,270	21,656
Juniata	16,986	17,390
Lancaster	116,314	121,340
Lawrence	22,999	27,298
Lebanon	31,831	34,096
Lehigh	43,753	56,796
Luzerne	90,244	160,755
Lycoming	37,399	47,626
McKean	8,859	8,825
Mercer	36,856	49,977
Mifflin	16,340	17,508
Monroe	16,758	18,362
Montgomery	70,500	81,612
Montour	13,053	15,344
Northampton	47,904	61,432
Northumberland	28,922	41,444
Perry	22,793	25,447
Philadelphia	565,529	674,022
Pike	7,155	8,436
Potter	11,470	11,265
Schuylkill	89,510	116,428
Snyder	15,035	15,606
Somerset	26,778	28,226
Sullivan	5,637	6,191
Susquehanna	36,267	37,523
Tioga	31,044	35,097
Union	14,145	15,565
Venango	25,043	47,925
Warren	19,190	23,897
Washington	46,805	48,483
Wayne	32,239	33,188
Westmoreland	53,736	58,719
Wyoming	12,540	14,585
York	68,200	76,134
Total	2,906,215	3,521,791

RHODE ISLAND

	1860.	1870.
Bristol	8,907	9,421
Kent	17,303	18,595
Newport	21,896	20,050
Providence	107,799	149,190
Washington	18,715	20,097
Total	174,620	217,353

SOUTH CAROLINA.

	1860.	1870.
Abbeville	32,385	31,129
Anderson	22,873	24,049
Barnwell	30,743	35,724
Beaufort	40,053	34,359
Charleston	70,100	88,863
Chester	18,122	18,805
Chesterfield	11,834	10,584
Clarendon	13,095	14,038
Colleton	41,916	25,410
Darlington	20,361	26,243
Edgefield	39,887	42,486
Fairfield	22,111	19,888
Georgetown	21,305	16,161
Greenville	21,892	22,262
Horry	7,962	10,721
Kershaw	13,086	11,754
Lancaster	11,797	12,087
Laurens	23,858	22,536
Lexington	15,579	12,988
Marion	21,190	22,160
Marlborough	12,434	11,814
Newberry	20,879	20,775
Oconee	....	10,536
Orangeburgh	24,896	16,865
Pickens	19,639	10,269
Richland	18,307	23,025
Spartanburgh	26,919	25,784
Sumter	23,859	25,268
Union	19,635	19,248
Williamsburgh	15,489	15,489
York	21,502	24,286
Total	703,708	705,606

(402,406 *slaves included in the total population for* 1860.)

TENNESSEE.

	1860.	1870.
Anderson	7,068	8,704
Bedford	21,584	24,333
Benton	8,463	8,234
Bledsoe	4,459	4,870
Blount	13,270	14,237
Bradley	11,701	11,652
Campbell	6,712	7,445
Cannon	9,509	10,502
Carroll	17,437	19,447
Carter	7,124	7,909
Cheatham	7,258	6,678
Claiborne	9,043	9,321
Cocke	10,408	12,458
Coffee	9,689	10,237
Cumberland	3,460	3,461
Davidson	47,055	62,897
Decatur	6,270	7,772
De Kalb	10,573	11,425
Dickson	9,982	9,340
Dyer	10,536	13,706
Fayette	24,327	26,145
Fentress	5,054	4,717
Franklin	13,848	14,970
Gibson	21,777	25,666
Giles	26,160	32,413
Grainger	10,962	12,421
Greene	19,004	21,668
Grundy	3,093	3,250
Hamilton	13,258	17,241
Hancock	7,020	7,148
Hardeman	17,769	18,074
Hardin	11,214	11,768
Hawkins	16,162	15,837
Haywood	19,232	25,094
Henderson	14,491	14,217
Henry	19,133	20,380
Hickman	9,312	9,856
Humphreys	9,096	9,326
Jackson	11,725	12,583
Jefferson	16,043	19,476
Johnson	5,018	5,852
Knox	22,813	28,990
Lake	....	2,428
Lauderdale	7,559	10,838
Lawrence	9,320	7,601
Lewis	2,241	1,986
Lincoln	22,828	28,050
Macon	7,290	6,633
Madison	21,535	23,480
Marion	6,190	6,841
Marshall	14,592	16,207
Maury	32,498	36,289
McMinn	13,555	13,969
McNairy	14,732	12,726
Meigs	4,667	4,511
Monroe	12,067	12,589
Montgomery	20,895	24,747
Morgan	3,353	2,969
Obion	12,817	15,584
Overton	12,637	11,297
Perry	6,042	6,925
Polk	8,726	7,369
Putnam	8,558	8,698
Rhea	4,991	5,538
Roane	13,583	15,622
Robertson	15,265	16,166
Rutherford	27,918	33,289
Scott	3,519	4,054
Sequatchie	2,120	2,435
Sevier	9,122	11,028
Shelby	48,092	76,378
Smith	16,357	15,994
Stewart	9,896	12,019
Sullivan	13,552	13,136
Sumner	22,030	23,711
Tipton	10,705	14,884
Union	6,117	7,605
Van Buren	2,581	2,725
Warren	11,147	12,714
Washington	14,829	16,317
Wayne	9,115	10,209
Weakley	18,216	20,755
White	9,381	9,375
Williamson	23,827	25,328
Wilson	26,072	25,881
Total	1,109,801	1,258,520

(275,719 *slaves included in the total population for* 1860.)

TEXAS.

	1860.	1870.
Anderson	10,398	9,229
Angelina	4,271	3,985
Archer	....	....
Atascosa	1,578	2,915
Austin	10,139	15,087
Bandera	399	649
Bastrop	7,006	12,290
Baylor	....	....
Bee	910	1,082
Bell	4,799	9,771
Bexar	14,454	16,043
Bexar District	....	1,977
Blanco	1,281	1,187
Bosque	2,005	4,981
Bowie	5,052	4,684
Brazoria	7,143	7,527
Brazos	2,776	9,205
Brown	244	544
Buchanan	230	....
Burleson	5,683	8,072
Burnet	2,487	3,688
Caldwell	4,481	6,572
Calhoun	2,642	3,443
Callahan	....	....
Cameron	6,028	10,999
Cass	8,411	....
Chambers	1,508	1,503
Cherokee	12,098	11,079
Clay	109	....
Coleman	....	347
Collin	9,264	14,013
Colorado	7,885	8,326
Comal	4,030	5,283
Comanche	709	1,001
Concho	....	....
Cook	3,760	5,315
Coryell	2,666	4,124
Dallas	8,665	13,314
Davis	....	8,875
Dawson	281	....
Demmit	....	109
Denton	5,031	7,251
De Witt	5,108	6,443
Duval	....	1,083
Eastland	99	88
Edwards	....	....
Ellis	5,246	7,514
El Paso	4,051	3,671
Encinal	43	427
Erath	2,425	1,801
Falls	3,614	9,851
Fannin	9,217	13,207
Fayette	11,604	16,863
Fort Bend	6,143	7,114
Freestone	6,881	8,139
Frio	42	309
Galveston	8,229	15,290
Gillespie	2,736	3,566
Goliad	3,384	3,628
Gonzales	8,059	8,951
Grayson	8,184	14,387
Grimes	10,307	13,218
Guadalupe	5,444	7,282
Hamilton	489	733
Hardeman	....	....
Hardin	1,353	1,460
Harris	9,070	17,375
Harrison	15,001	13,241
Haskell	....	....
Hays	2,126	4,088
Henderson	4,595	6,786
Hidalgo	1,182	2,387
Hill	3,653	7,453
Hood	....	2,585
Hopkins	7,745	12,651
Houston	8,058	8,147
Hunt	6,630	10,291
Jack	1,000	694
Jackson	2,612	2,278
Jasper	4,037	4,218
Jefferson	1,995	1,906
Johnson	4,305	4,923
Jones	....	....
Karnes	2,171	1,705
Kaufman	3,936	6,895
Kendall	....	1,536
Kerr	634	1,042
Kimble	....	72
Kinney	61	1,204
Knox	....	....
Lamar	10,136	15,790
Lampasas	1,028	1,344
La Salle	....	69
Lavaca	5,945	9,168
Leon	6,781	6,523
Liberty	3,189	4,414
Limestone	4,537	8,591
Live Oak	593	852
Llano	1,101	1,379
Madison	2,238	4,061
Marion	3,977	8,562
Mason	630	678
Matagorda	3,454	3,377
Maverick	726	1,951
McCulloch	....	173
McLennan	6,206	13,500
McMullen	....	230
Medina	1,838	2,078
Menard	....	667
Menora	....	....
Milam	5,175	8,984
Montague	849	890
Montgomery	5,479	6,483
Nacogdoches	8,292	9,614
Navarro	5,996	8,879
Newton	3,119	2,187
Nueces	2,906	3,975
Orange	1,916	1,255
Palo Pinto	1,524	....
Panola	8,475	10,119
Parker	4,213	4,186
Polk	8,300	8,707
Presidio	580	1,636
Red River	8,535	10,653
Refugio	1,600	2,324
Robertson	4,997	9,990
Runnels	....	....
Rusk	15,803	16,916
Sabine	2,750	3,256
San Augustine	4,094	4,196
San Patricio	620	602
San Saba	913	1,425
Shackleford	44	455
Shelby	5,362	5,732
Smith	13,392	16,532
Starr	2,406	4,154
Stephens	....	330
Tarrant	6,029	5,788
Taylor	....	....
Throckmorton	124	....
Titus	9,648	11,339
Travis	8,080	13,153
Trinity	4,392	4,141
Tyler	4,525	5,010
Upshur	10,645	12,039
Uvalde	506	851
Van Zandt	3,777	6,494
Victoria	4,171	4,860
Walker	8,191	9,776
Washington	15,215	23,104
Webb	1,397	2,615
Wharton	3,380	3,426
Wichita	....	....
Wilbarger	....	....
Williamson	4,529	6,368
Wilson	....	2,556
Wise	3,160	1,450
Wood	4,968	6,894
Young	592	135
Young Territory	....	....
Zapata	1,248	1,488
Zavala	26	133
Total	604,215	818,579

(182,566 *slaves included in the total population for* 1860.)

VERMONT

	1860.	1870.
Addison	24,010	23,484
Bennington	19,436	21,325
Caledonia	21,708	22,247
Chittenden	28,171	36,480
Essex	5,786	6,811
Franklin	27,231	30,291
Grand Isle	4,276	4,082
Lamoille	12,311	12,448
Orange	25,455	23,090
Orleans	18,981	21,035
Rutland	35,946	40,651
Washington	27,612	26,508
Windham	26,982	26,036
Windsor	37,193	36,063
Total	315,098	330,551

VIRGINIA

	1860.	1870.
Accomack	18,586	20,409
Albemarle	26,625	27,544
Alexandria	12,652	16,755
Alleghany	6,765	3,674
Amelia	10,741	9,878
Amherst	13,742	14,900
Appomattox	8,889	8,950
Augusta	27,749	28,763
Bath	3,676	3,795
Bedford	25,068	25,327
Bland	....	4,000
Botetourt	11,516	11,329
Brunswick	14,809	13,427
Buchanan	2,793	3,777
Buckingham	15,212	13,371
Campbell	26,197	28,384
Caroline	18,464	15,128
Carroll	8,012	9,147
Charles City	5,609	4,975
Charlotte	14,471	14,513
Chesterfield	19,016	18,470
Clarke	7,146	6,670
Craig	3,553	2,942
Culpepper	12,063	12,227
Cumberland	9,961	8,142
Dinwiddie	30,198	30,702
Elizabeth City	5,798	8,303
Essex	10,469	9,927
Fairfax	11,834	12,952
Fauquier	21,706	19,690
Floyd	8,236	9,824
Fluvanna	10,353	9,875
Franklin	20,098	18,264
Frederick	16,546	16,596
Giles	6,883	5,875
Gloucester	10,956	10,211
Goochland	10,656	10,313
Grayson	8,252	9,587
Greene	5,022	4,634
Greenville	6,374	6,362
Halifax	26,520	27,828
Hanover	17,222	16,455
Henrico	61,616	66,179
Henry	12,105	12,303
Highland	4,319	4,151
Isle of Wight	9,977	8,320
James City	5,798	4,425
King and Queen	10,328	9,709
King George	6,571	5,742
King William	8,530	7,515
Lancaster	5,151	5,355
Lee	11,032	13,268
Loudon	21,774	20,929
Louisa	16,701	16,332
Lunenburg	11,983	10,403
Madison	8,854	8,670
Matthews	7,091	6,200
Mecklenburg	20,096	21,318
Middlesex	4,364	4,981
Montgomery	10,617	12,556
Nansemond	13,693	11,576
Nelson	13,015	13,898
New Kent	5,884	4,381
Norfolk	36,227	46,702
Northampton	7,832	8,046
Northumberland	7,531	6,863
Nottoway	8,836	9,291
Orange	10,851	10,396
Page	8,109	8,462
Patrick	9,359	10,161
Pittsylvania	32,104	31,343
Powhatan	8,392	7,667
Prince Edward	11,844	12,004
Prince George	8,411	7,820
Princess Anne	7,714	8,273
Prince William	8,565	7,504
Pulaski	5,416	6,538
Rappahannock	8,850	8,261
Richmond	6,856	6,503
Roanoke	8,048	9,350
Rockbridge	17,248	16,058
Rockingham	23,408	23,668
Russell	10,280	11,103
Scott	12,072	13,036
Shenandoah	13,896	14,936
Smyth	8,952	8,898
Southampton	12,915	12,285
Spottsylvania	16,076	11,728
Stafford	8,555	6,420
Surry	6,133	5,585
Sussex	10,175	7,885
Tazewell	9,920	10,791
Warren	6,442	5,716
Warwick	1,740	1,672
Washington	16,892	16,816
Westmoreland	8,282	7,682
Wise	4,508	4,785
Wythe	12,305	11,611
York	4,949	7,198
Total	1,219,630	1,225,163

(472,494 *slaves included in the total population for* 1860.)

WEST VIRGINIA.*

	1860.	1870.
Barbour	8,958	10,312
Berkeley	12,525	14,900
Boone	4,840	4,553
Braxton	4,992	6,480
Brooke	5,494	5,464
Cabell	8,020	6,429
Calhoun	2,502	2,939
Clay	1,787	2,196
Doddridge	5,203	7,076
Fayette	5,997	6,647
Gilmer	3,759	4,338
Grant	....	4,467
Greenbrier	12,211	11,417
Hampshire	13,913	7,643
Hancock	4,445	4,363
Hardy	9,864	5,518
Harrison	13,790	16,714
Jackson	8,306	10,300
Jefferson	14,535	13,219
Kanawha	16,150	22,349
Lewis	7,999	10,175
Lincoln	....	5,053
Logan	4,938	5,124
Marion	12,722	12,107
Marshall	12,997	14,941
Mason	9,173	15,978
McDowell	1,535	1,952
Mercer	6,819	7,064
Mineral	....	6,332
Monongalia	13,048	13,547
Monroe	10,757	11,124
Morgan	3,732	4,315
Nicholas	4,627	4,458
Ohio	22,422	28,831
Pendleton	6,164	6,455
Pleasants	2,945	3,012
Pocahontas	3,958	4,069
Preston	13,312	14,555
Putnam	6,301	7,794
Raleigh	3,367	3,673
Randolph	4,990	5,563
Ritchie	6,847	9,055
Roane	5,381	7,232
Taylor	7,463	9,367
Tucker	1,428	1,907
Tyler	6,517	7,832
Upshur	7,292	8,023
Wayne	6,747	7,852
Webster	1,555	1,730
Wetzel	6,703	8,595
Wirt	3,751	4,804
Wood	11,046	19,000
Wyoming	2,861	3,171
Total	376,688	442,014

(18,371 *slaves included in the total population for* 1860.)

* In 1863 organized from Virginia.

WISCONSIN.

	1860.	1870.
Adams	6,492	6,601
Ashland	515	221
Bad Ax	11,007	....
Barron	....	538
Bayfield	....	344
Brown	11,795	25,168
Buffalo	3,864	11,123
Burnett	12	706
Calumet	7,895	12,335
Chippewa	1,895	8,311
Clark	789	3,450
Columbia	24,441	28,802
Crawford	8,068	13,075
Dallas	13	....
Dane	43,922	53,096
Dodge	42,818	47,035
Door	2,948	4,919
Douglass	812	1,122
Dunn	2,704	9,488
Eau Claire	3,162	10,769
Fond du Lac	34,154	46,273
Grant	31,189	37,979
Green	19,808	23,611
Green Lake	12,663	13,195
Iowa	18,967	24,544
Jackson	4,170	7,687
Jefferson	30,438	34,040
Juneau	8,770	12,372
Kenosha	13,900	13,147
Kewaunee	5,539	10,128

	1860.	1870.
La Crosse	12,186	20,297
La Fayette	18,134	22,659
La Pointe	353	....
Manitowoc	22,416	33,364
Marathon	2,892	5,885
Marquette	8,233	8,056
Milwaukee	62,518	89,930
Monroe	8,410	16,550
Oconto	3,592	8,321
Outagamie	9,587	18,430
Ozaukee	15,682	15,564
Pepin	2,392	4,659
Pierce	4,672	9,958
Polk	1,400	3,422
Portage	7,507	10,634
Racine	21,360	26,740
Richland	9,732	15,731
Rock	36,690	39,030
Sauk	18,963	23,860
Shawano	829	3,166
Sheboygan	26,875	31,749
St. Croix	5,392	11,035
Trempeleau	2,560	10,732
Vernon	....	18,645
Walworth	26,496	25,972
Washington	23,622	23,919
Waukesha	26,831	28,274
Waupacca	8,851	15,539
Waushara	8,770	11,279
Winnebago	23,770	37,279
Wood	2,425	3,912
Total	775,881	1,054,670

TERRITORIES.

ALASKA.

Territorial District.		
Total	....	....

ARIZONA.

	1860.	1870.
Mohave	....	179
Pima	....	5,716
Yavapia	....	2,142
Yuma	....	1,621
Total	....	9,658

COLORADO.

	1860.	1870.
Arapahoe	....	6,829
Bent	....	592
Boulder	....	1,939
Clear Creek	....	1,596
Conejos	....	2,504
Costilla	....	1,779
Douglass	....	1,388
El Paso	....	987
Fremont	....	1,064
Gilpin	....	5,490
Greenwood	....	510
Huerfano	....	2,250
Jefferson	....	2,390
Lake	....	522
Larimer	....	838
Las Animas	....	4,276
Park	....	447
Pueblo	....	2,265
Saguache	....	304

	1860.	1870.
Summit	....	258
Weld	....	1,636
Total	34,277	39,864

COLUMBIA, Dist. of.

	1860.	1870.
Total	75,080	131,700

DAKOTA.

	1860.	1870.
Bonhomme	....	608
Brookings	....	163
Buffalo	....	246
Charles Mix	....	152
Clay	....	2,621
Deuel	....	37
Hutchinson	....	37
Jayne	....	5
Lincoln	....	712
Minnehaha	....	355
Pembina	....	1,213
Todd	....	337
Union	....	3,507
Yankton	....	2,097
Unorganiz'd Ter.	....	2,091
Total	4,837	14,181

IDAHO.

	1860.	1870.
Ada	....	2,675
Alturas	....	689
Boise	....	3,834
Idaho	....	849
Lemhi	....	988
Nez Perces	....	1,607
Oneida	....	1,922
Owyhee	....	1,713
Shoshone	....	722
Total	....	14,999

MONTANA.

	1860.	1870.
Beaver Head	....	722
Big Horn	....	38
Chouteau	....	517
Dawson	....	177
Deer Lodge	....	4,367
Gallatin	....	1,578
Jefferson	....	1,531
Lewis and Clarke	....	5,040
Madison	....	2,684
Meagher	....	1,387
Missoula	....	2,554
Total	....	20,595

NEW MEXICO.

	1860.	1870.
Arizona	6,482	....
Bernalillo	8,769	7,591
Colfax	....	1,992
Doña Ana	6,239	5,864
Grant	....	1,143
Lincoln	....	1,803
Mora	5,562	8,056
Rio Arriba	9,849	9,294
San Miguel	13,714	16,058
Santa Ana	3,572	2,599
Santa Fé	8,114	9,699
Socorro	5,787	6,603
Taos	14,103	12,079
Valencia	11,321	9,093
Total	93,516	91,874

UTAH

	1860.	1870.
Beaver	785	2,007
Box Elder	1,608	4,855
Cache	2,605	8,229
Cedar	741	....
Davis	2,904	4,459
Green River	141	....
Iron	1,010	2,277
Juab	672	2,034
Kane	....	1,513
Millard	715	2,753
Morgan	....	1,972
Piute	....	82
Rich	....	1,955
Rio Virgin	....	450
Salt Lake	11,295	18,337
San Pete	3,815	6,786
Sevier	....	19
Shambip	162	....
Summit	198	2,512
Tooele	1,008	2,177
Utah	8,248	12,203
Wasatch	....	1,244
Washington	691	3,064
Weber	3,675	7,858
Total	40,273	86,786

29 slaves included in the total population for 1860.

WASHINGTON.

	1860.	1870.
Chehalis	285	401
Clallam	149	408
Clarke	2,384	3,081
Cowlitz	406	730
Island	294	626
Jefferson	531	1,268
King	302	2,120
Kitsap	544	866
Klikitat	230	329
Lewis	384	888
Mason	....	289
Pacific	420	738
Pierce	1,115	1,409
Sawamish	162	....
Skamania	173	133
Snohomish	....	599
Spokane	996	....
Stevens	....	734
Thurston	1,507	2,246
Wahkiakum	42	270
Walla-Walla	1,318	5,300
Whatcom	352	534
Yakima	....	432
Disputed Islands	....	554
Total	11,594	23,955

WYOMING.

	1860.	1870.
Albany	....	2,021
Carbon	....	1,368
Laramie	....	2,957
Sweetwater	....	1,916
Uintah	....	856
Total	....	9,118

POPULATION OF THE PRINCIPAL TOWNS AND CITIES OF THE UNITED STATES AND TERRITORIES.

EXPLANATION:—State Capitals thus, as **Harrisburg**. Other cities, as Philadelphia. Towns in Italics, as *Easton*.

ALABAMA.

	1860.	1870.
Huntsville	3,634	4,907
Mobile	29,258	32,034
Montgomery	8,843	10,588
Selma	3,177	6,484

ALASKA, Territorial Dist.

	1860.	1870.
Sitka		

ARIZONA Ter.

	1860.	1870.
Tucson	....	3,224

ARKANSAS.

	1860.	1870.
Little Rock	3,727	12,380

CALIFORNIA.

	1860.	1870.
Los Angeles	4,392	5,728
Marysville	....	4,738
Oakland	1,549	10,500
Sacramento	13,785	16,283
San Francisco	56,802	149,473
San Jose	....	9,089
Stockton	3,679	10,066

COLORADO Ter.

	1860.	1870.
Denver	4,759	4,759
Central City	598	2,360

COLUMBIA, Dist. of.

	1860.	1870.
Georgetown	8,733	11,384
WASHINGTON	61,122	109,199

CONNECTICUT.

	1860.	1870.
Bridgeport	13,299	18,969
Danbury	....	6,542
Hartford	29,152	37,180
Middletown	5,182	6,923
New Haven	39,267	50,840
Norwich	14,048	16,653
Waterbury	10,004	10,826

DAKOTA Ter.

	1860.	1870.
Yankton	....	734

DELAWARE.

	1860.	1870.
Dover	....	1,906
Wilmington	21,258	30,841

FLORIDA.

	1860.	1870.
Jacksonville	2,118	6,912
Tallahassee	1,932	2,023

GEORGIA.

	1860.	1870.
Athens	3,848	4,251
Atlanta	9,554	21,789
Augusta	12,493	15,389
Columbus	9,621	7,401
Macon	8,247	10,810
Milledgeville	2,480	2,750
Savannah	22,292	28,235

IDAHO Ter.

	1860.	1870.
Boise City	....	995

ILLINOIS

	1860.	1870.
Alton	6,332	8,665
Aurora	6,011	11,162
Belleville	7,520	8,146
Bloomington	7,075	14,590
Cairo	2,188	6,267
Champaign	1,727	4,625
Chicago	112,172	298,977
Danville	1,632	4,751
Decatur	3,839	7,161
Dixon	2,218	4,055
East St. Louis	....	5,644
Elgin	2,797	5,441
Freeport	5,376	7,889
Galena	8,196	7,019
Galesburg	4,953	10,158
Jacksonville	5,528	9,203
Joliet	7,102	7,263
La Salle	4,016	5,200
Moline	2,028	4,166
Monmouth	2,506	4,662
Ottawa	....	7,736
Pekin	3,467	5,696
Peoria	14,045	22,849
Quincy	13,718	24,052
Rockford	6,979	11,049
Rock Island	5,130	7,890
Springfield	9,320	17,364
Waukegan	3,433	4,507

INDIANA.

	1860.	1870.
Evansville	11,484	21,830
Fort Wayne	....	17,718
Indianapolis	18,611	48,244
Jeffersonville	4,020	7,254
Lafayette	9,387	13,506
La Porte	5,028	6,581
Logansport	2,978	8,950
Madison	8,130	10,709
New Albany	12,647	15,396
Richmond	6,603	9,445
South Bend	3,832	7,206
Terre Haute	8,594	16,103
Vincennes	3,960	5,440

IOWA.

	1860.	1870.
Burlington	6,706	14,930
Cedar Rapids	1,830	5,940
Clinton	....	6,129
Council Bluffs	2,011	10,020
Davenport	11,267	20,038
Des Moines	3,965	12,035
Dubuque	13,000	18,434
Fort Madison	2,886	4,011
Iowa City	5,214	5,914
Keokuk	8,136	12,766
Lyons	....	4,088
Mount Pleasant	3,530	4,245
Muscatine	5,324	6,718
Ottumwa	1,632	5,214
Waterloo	1,205	4,337

KANSAS.

	1860.	1870.
Atchison	2,616	7,054
Fort Scott	262	4,174
Lawrence	1,645	8,320
Leavenworth	7,429	17,873
Topeka	759	5,790

KENTUCKY.

	1860.	1870.
Bowling Green	....	4,574
Covington	16,471	24,505
Frankfort	3,702	5,396
Henderson	....	4,171
Lexington	9,321	14,801
Louisville	68,033	100,753
Maysville	3,499	4,705
Newport	10,046	15,087
Paducah	4,590	6,866

LOUISIANA.

	1860.	1870.
Baton Rouge	5,428	6,498
New Orleans	138,675	191,418
Shreveport	2,190	4,607

MAINE.

	1860.	1870.
Auburn	4,022	6,169
Augusta	7,609	7,808
Bangor	16,407	18,289
Bath	8,076	7,371
Belfast	5,520	5,278
Biddeford	9,349	10,282
Calais	5,621	5,911
Lewiston	7,431	13,600
Portland	26,341	31,413
Rockland	7,316	7,074

MARYLAND.

	1860.	1870.
Annapolis	4,529	5,744
Baltimore	212,418	267,354
Cumberland	4,078	8,056
Frederick	8,143	8,526

MASSACHUSETTS

	1860.	1870.
Boston	177,840	250,526
Cambridge	26,060	39,634
Charlestown	25,065	28,323
Chelsea	13,395	18,547
Fall River	14,026	26,766
Fitchburg	7,805	11,260
Haverhill	9,995	13,092
Lawrence	17,639	28,921
Lowell	36,827	40,928
Lynn	19,083	28,233
New Bedford	22,300	21,320
Newburyport	13,401	12,595
Northampton	6,788	10,160
Pittsfield	8,045	11,112
Roxbury	25,137	....
Salem	22,252	24,117
Springfield	15,199	26,703
Taunton	15,376	18,629
Worcester	24,960	41,105

MICHIGAN.

	1860.	1870.
Adrian	6,213	8,438
Ann Arbor	5,097	7,363
Battle Creek	....	5,838
Bay City	1,583	7,064
Coldwater	....	4,381
Detroit	45,619	79,577
East Saginaw	3,001	11,350
Flint	2,950	5,386
Grand Rapids	8,085	16,507
Jackson	4,799	11,447
Kalamazoo	6,070	9,180
Lansing	3,074	5,241
Marquette	....	4,000
Marshall	....	4,925
Monroe	3,892	5,086
Muskegon	1,450	6,002
Niles	....	4,630
Pontiac	2,675	4,867
Port Huron	4,371	5,973
Saginaw	1,699	7,460
Ypsilanti	3,955	5,471

MINNESOTA.

	1860.	1870.
Minneapolis	2,564	13,066
Red Wing	1,156	4,260
St. Anthony	3,258	5,013
Stillwater	2,380	4,124
St. Paul	10,401	20,030
Winona	2,464	7,192

MISSISSIPPI.

	1860.	1870.
Columbus	3,308	4,812
Jackson	3,199	4,234
Vicksburg	4,591	12,443

MISSOURI.

	1860.	1870.
Hannibal	6,505	10,125
Jefferson City	3,082	4,420
Kansas City	4,418	32,260
Lexington	4,122	4,373
Sedalia	....	4,560
Springfield	....	5,555
St. Charles	3,239	5,570
St. Joseph	8,932	19,565
St. Louis	160,773	310,864

MONTANA Ter.

	1860.	1870.
Virginia City	....	867
Helena	....	3,106

NEBRASKA.

	1860.	1870.
Nebraska	1,922	6,050
Omaha City	1,883	16,083

NEVADA.

	1860.	1870.
Carson City	714	3,042
Virginia City	2,345	7,048

NEW HAMPSHIRE.

	1860.	1870.
Concord	10,896	12,241
Dover	8,502	9,291
Manchester	20,107	23,536
Nashua	10,065	10,543
Portsmouth	9,335	9,211

NEW JERSEY.

	1860.	1870.
Bridgeton	3,595	6,830
Burlington	5,174	5,817
Camden	14,358	20,045
Elizabeth	11,567	20,832
Harrison	2,556	4,129
Hoboken	9,662	20,297
Jersey City	29,226	82,546
Millville	3,032	6,101
Newark	71,941	105,059
New Brunswick	11,256	15,058
Orange	8,877	9,348
Paterson	19,586	33,579
Plainfield	3,224	5,095
Rahway	7,030	6,258
Salem	3,865	4,555
Trenton	17,228	22,874
Union	....	4,040

NEW MEXICO Ter.

	1860.	1870.
Santa Fe	4,635	4,765

NEW YORK.

	1860.	1870.
Albany	62,367	69,422
Amsterdam	....	5,426
Astoria	....	5,201
Auburn	10,986	17,225
Binghamton	8,325	12,692
Brooklyn	266,661	396,099
Buffalo	81,129	117,714
Canandaigua	4,822	4,862
Cohoes	8,800	15,357
Corning	....	4,018
Dunkirk	....	5,231
Elmira	....	15,863
Flushing	....	6,223
Geneva	....	5,521
Glen's Falls	....	4,500
Gloversville	....	4,518
Hornellsville	....	4,552
Hudson	7,187	8,615
Ithaca	....	8,462
Jamestown	3,155	5,336
Kingston	....	6,315
Lansingburgh	....	6,372
Little Falls	....	5,387
Lockport	....	12,126
Middletown	....	6,049
New Brighton	....	7,195
Newburgh	....	17,014
New York	805,658	942,292
Norwich	....	4,279
Ogdensburgh	7,409	10,076
Oswego	16,816	20,910
Peekskill	....	6,560
Plattsburgh	3,032	5,139
Port Jervis	....	6,377
Poughkeepsie	14,726	20,080
Rochester	48,204	62,386
Rome	3,584	11,000
Rondout	....	10,114
Saratoga Springs	....	7,516
Schenectady	9,579	11,026
Seneca Falls	1,206	5,890
Sing Sing	5,345	4,696
Syracuse	28,119	43,051
Troy	39,235	46,165
Utica	22,529	28,804
Waterloo	3,375	4,080
Watertown	....	9,336
West Troy	8,820	10,693
Whitehall	....	4,322
Yonkers	....	12,733

NORTH CAROLINA.

	1860.	1870.
Charlotteville	2,265	4,173
Fayetteville	4,790	4,660
New Berne	5,432	5,849
Raleigh	4,780	7,790
Wilmington	9,552	13,446

OHIO.

	1860.	1870.
Akron	3,477	10,006
Alliance	1,421	4,063
Bellaire	1,466	4,033
Canton	4,041	8,660
Chillicothe	7,626	8,920
Cincinnati	161,044	216,239
Circleville	4,383	5,407
Cleveland	43,417	92,829
Columbus	18,554	31,274
Dayton	20,081	30,473
Delaware	3,889	5,641
Fremont	3,510	5,455
Hamilton	7,223	11,081
Ironton	3,691	5,086
Lancaster	4,303	4,725
Lima	1,089	4,500
Mansfield	4,581	8,029
Marietta	4,323	5,218
Massillon	3,819	5,185
Mount Vernon	4,202	4,876
Newark	4,675	6,698
Norwalk	2,830	4,498
Piqua	4,616	5,967
Pomeroy	6,480	5,824
Portsmouth	6,268	10,592
Sandusky	8,408	13,000
Springfield	7,002	12,652
Steubenville	6,054	8,107
Tiffin	3,902	5,648
Toledo	13,768	31,584
Urbana	3,439	4,276
Wooster	3,361	5,419
Xenia	4,658	6,377
Youngstown	2,759	8,075
Zanesville	9,229	10,011

OREGON.

	1860.	1870.
Portland	2,874	8,293
Salem	....	1,139

PENNSYLVANIA.

	1860.	1870.
Allegheny	28,702	53,180
Allentown	8,025	13,884
Altoona	3,591	10,610
Ashland	3,880	5,711
Bethlehem	2,866	4,512
Birmingham	6,046	8,603
Carbondale	....	6,393
Carlisle	5,664	6,650
Chambersburg	5,255	6,308
Chester	4,631	9,485
Columbia	5,007	6,461
Corry	....	6,809
Danville	6,385	8,436
Dunmore	....	4,311
E. Birmingham	3,421	6,488
Easton	8,944	10,987
Erie	9,419	19,646
Harrisburg	13,405	23,104
Hazleton	1,707	4,317
Johnstown	4,185	6,028
Lancaster	17,603	20,233
Lebanon	4,449	6,727
Lockhaven	3,349	6,986
Mahanoy	....	5,533
Meadville	3,702	7,103
New Brighton	2,631	4,037
New Castle	1,882	6,164
Norristown	8,848	10,753
Philadelphia	565,529	674,022
Phœnixville	4,880	5,292
Pittsburgh	49,217	86,076
Pittston	3,682	6,760
Pottstown	2,380	4,125
Pottsville	9,444	12,384
Reading	23,162	33,930
Scranton	9,223	35,092
Shamokin	....	4,320
Sharon	900	4,221
Tamaqua	4,919	5,960
Titusville	438	8,639
West Chester	4,757	5,630
Wilkesbarre	4,253	10,174
Williamsport	5,664	16,030
York	8,605	11,003

RHODE ISLAND.

	1860.	1870.
Newport	10,508	12,521
Providence	50,666	68,904

SOUTH CAROLINA.

	1860.	1870.
Charleston	40,519	48,956
Columbia	8,052	9,298

TENNESSEE.

	1860.	1870.
Chattanooga	....	6,093
Jackson	2,407	4,119
Knoxville	....	8,682
Memphis	22,623	40,226
Nashville	16,988	25,865

TEXAS.

	1860.	1870.
Austin	3,494	4,428
Brownsville	2,734	4,905
Galveston	7,307	13,818
Houston	4,845	9,382
Jefferson	988	4,190
San Antonio	8,235	12,256

UTAH Ter.

	1860.	1870.
Salt Lake City	8,236	12,854

VERMONT.

	1860.	1870.
Burlington	7,713	14,387
Montpelier	2,411	3,023

VIRGINIA.

	1860.	1870.
Alexandria	12,652	13,570
Fredericksburg	5,022	4,046
Lynchburg	6,853	6,825
Norfolk	14,620	19,229
Petersburg	18,266	18,950
Portsmouth	9,496	10,492
Richmond	37,910	51,038
Staunton	3,875	5,120
Winchester	4,392	4,477

WASHINGTON Ter.

	1860.	1870.
Olympia	....	1,203

WEST VIRGINIA.

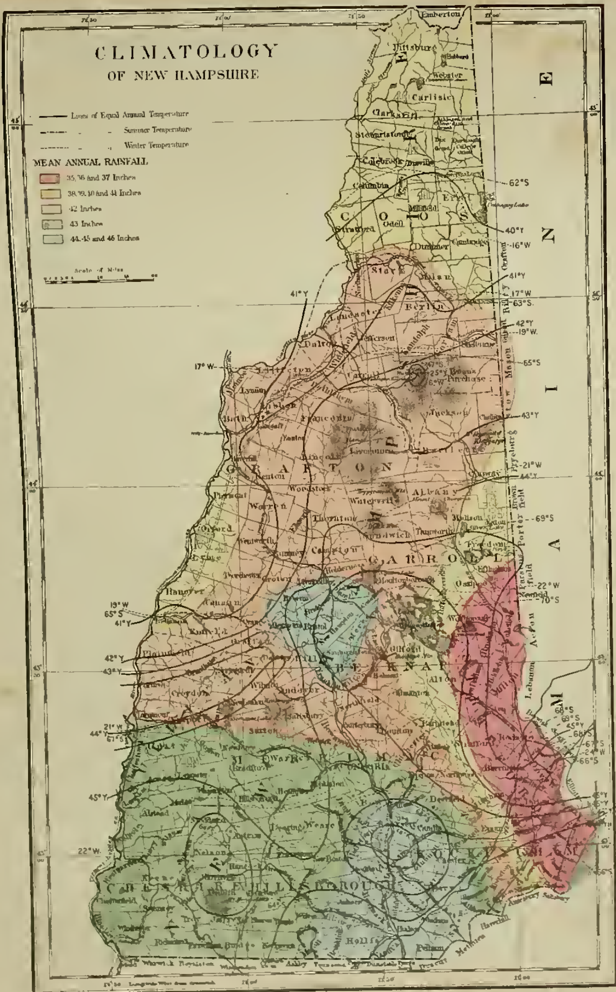
	1860.	1870.
Martinsburg	3,364	4,862
Parkersburg	2,493	5,546
Wheeling	14,083	19,280

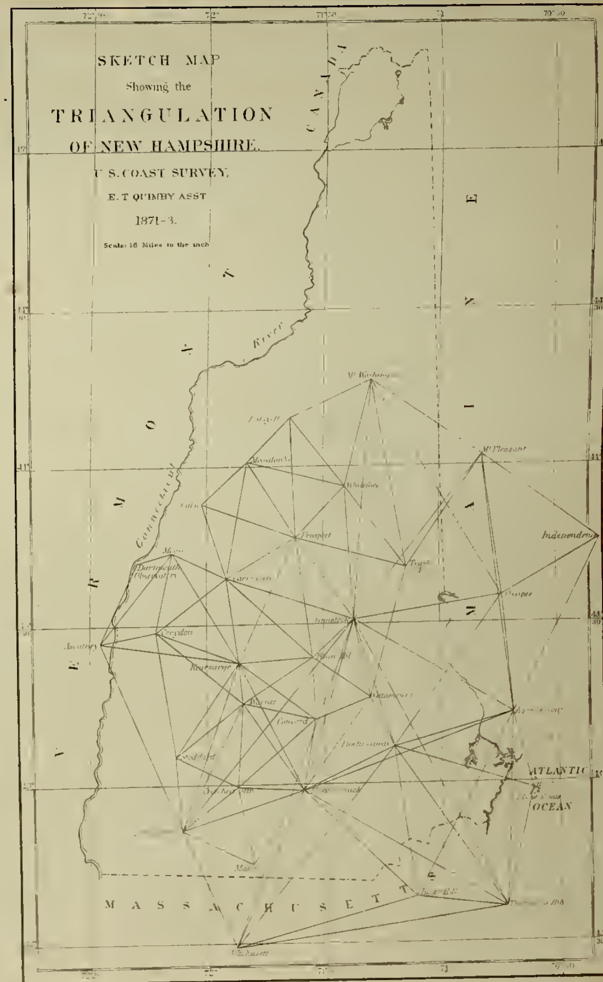
WISCONSIN.

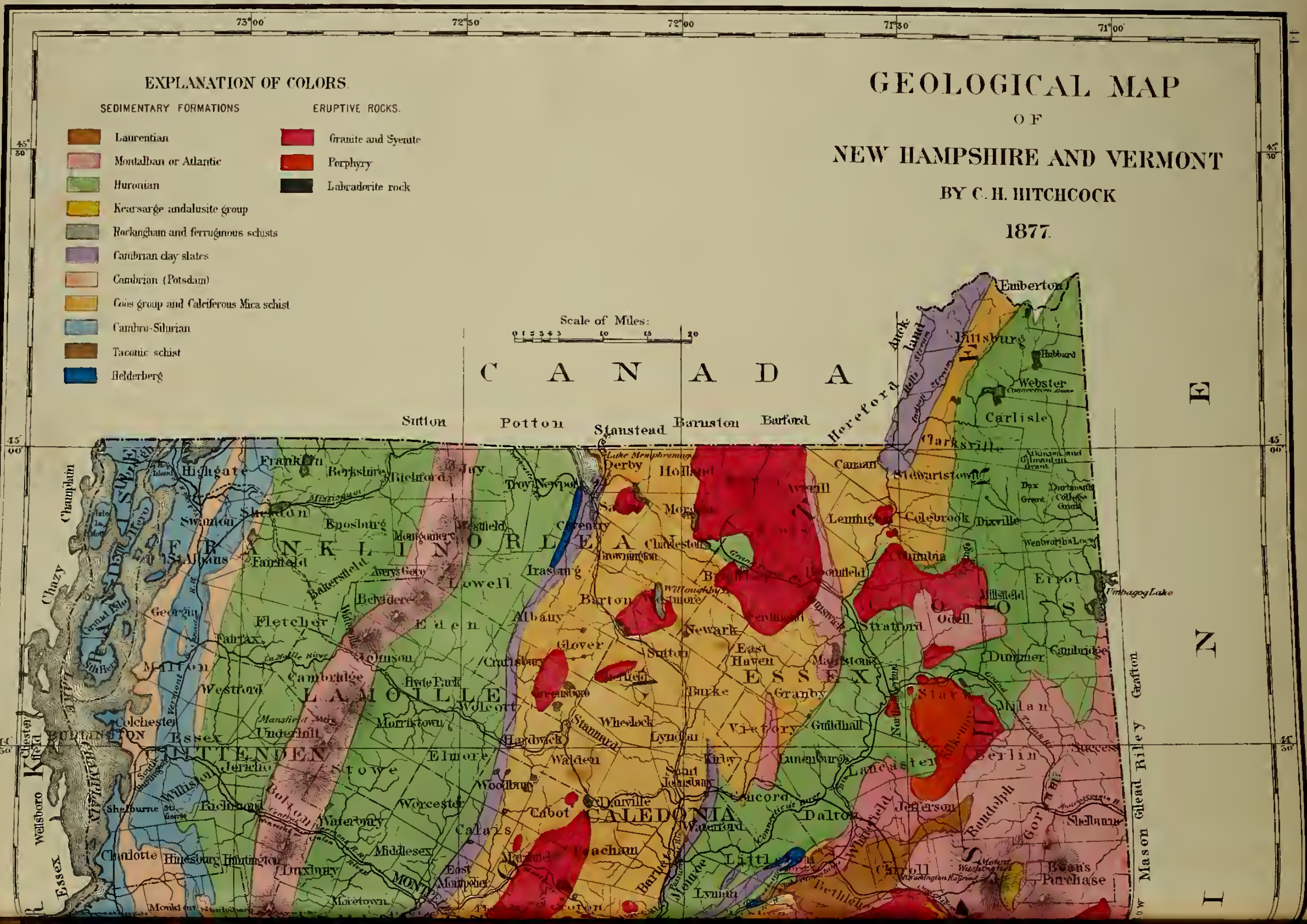
	1860.	1870.
Appleton	2,345	4,518
Beloit	4,098	4,396
Fond du Lac	5,460	12,764
Green Bay	2,275	4,666
Janesville	7,703	8,789
Kenosha	3,990	4,309
La Crosse	3,860	7,785
Madison	6,611	9,176
Manitowoc	3,059	5,168
Milwaukee	45,246	71,440
Oshkosh	6,086	12,663
Racine	7,822	9,880
Sheboygan	4,262	5,310
Watertown	5,302	7,550

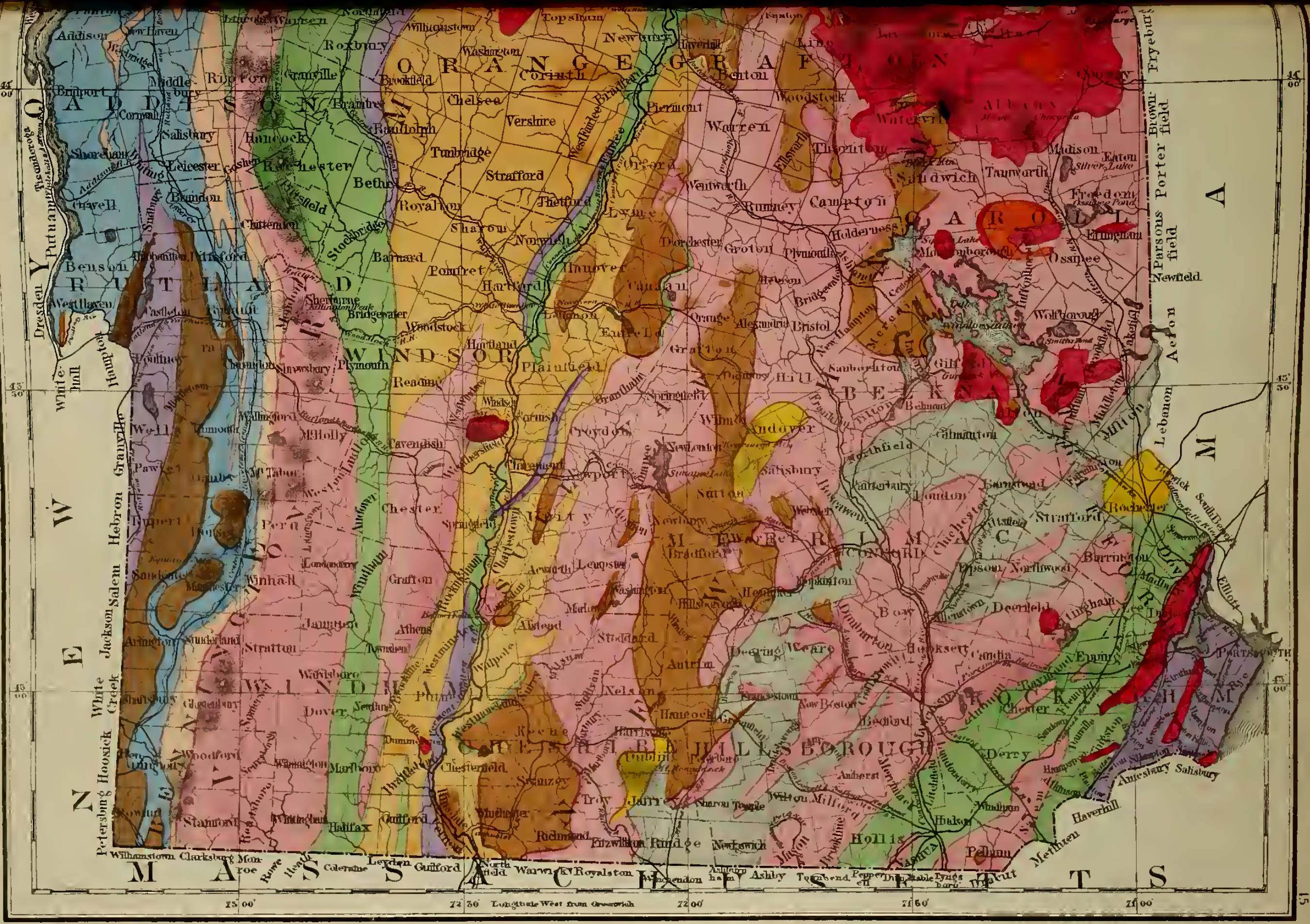
WYOMING Ter.

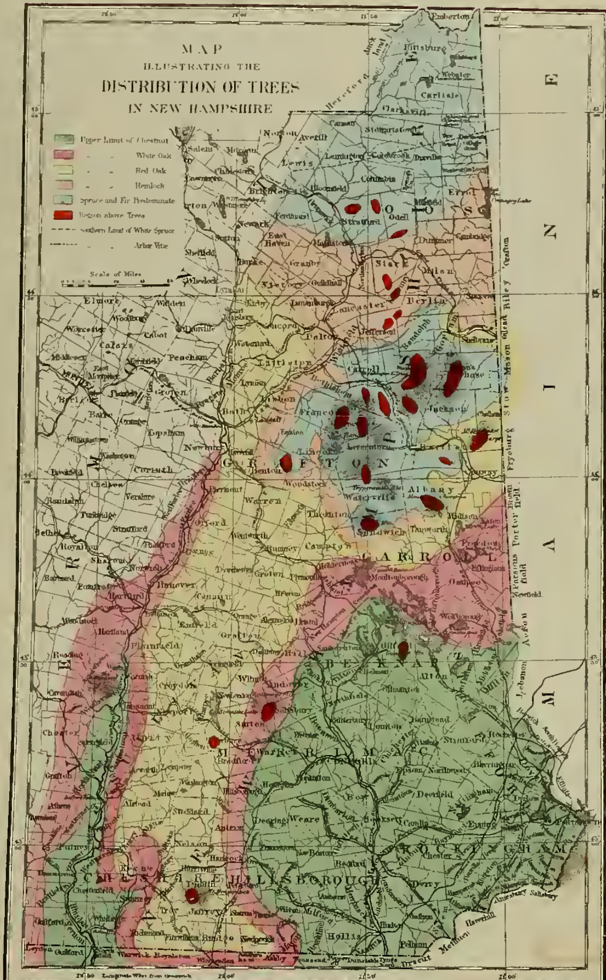
	1860.	1870.
Cheyenne	....	1,150

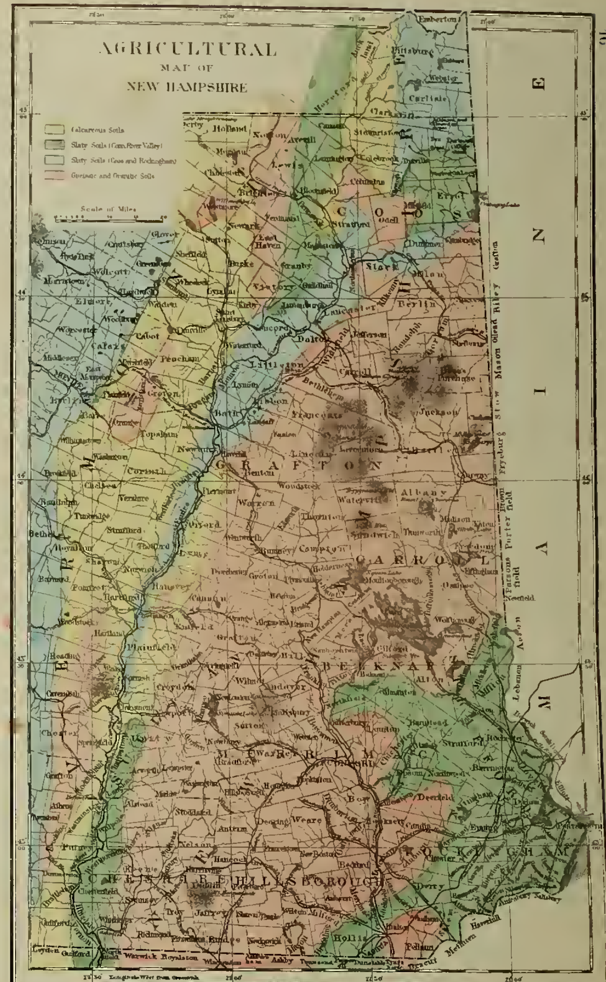

CLIMATOLOGY
OF NEW HAMPSHIRE
Lines of Equal Annual Temperature
Summer Temperature
Winter Temperature
MEAN ANNUAL RAINFALL
35, 36 and 37 Inches
38, 39, 40 and 41 Inches
42 Inches
43 Inches
44, 45 and 46 Inches
Scale of Miles

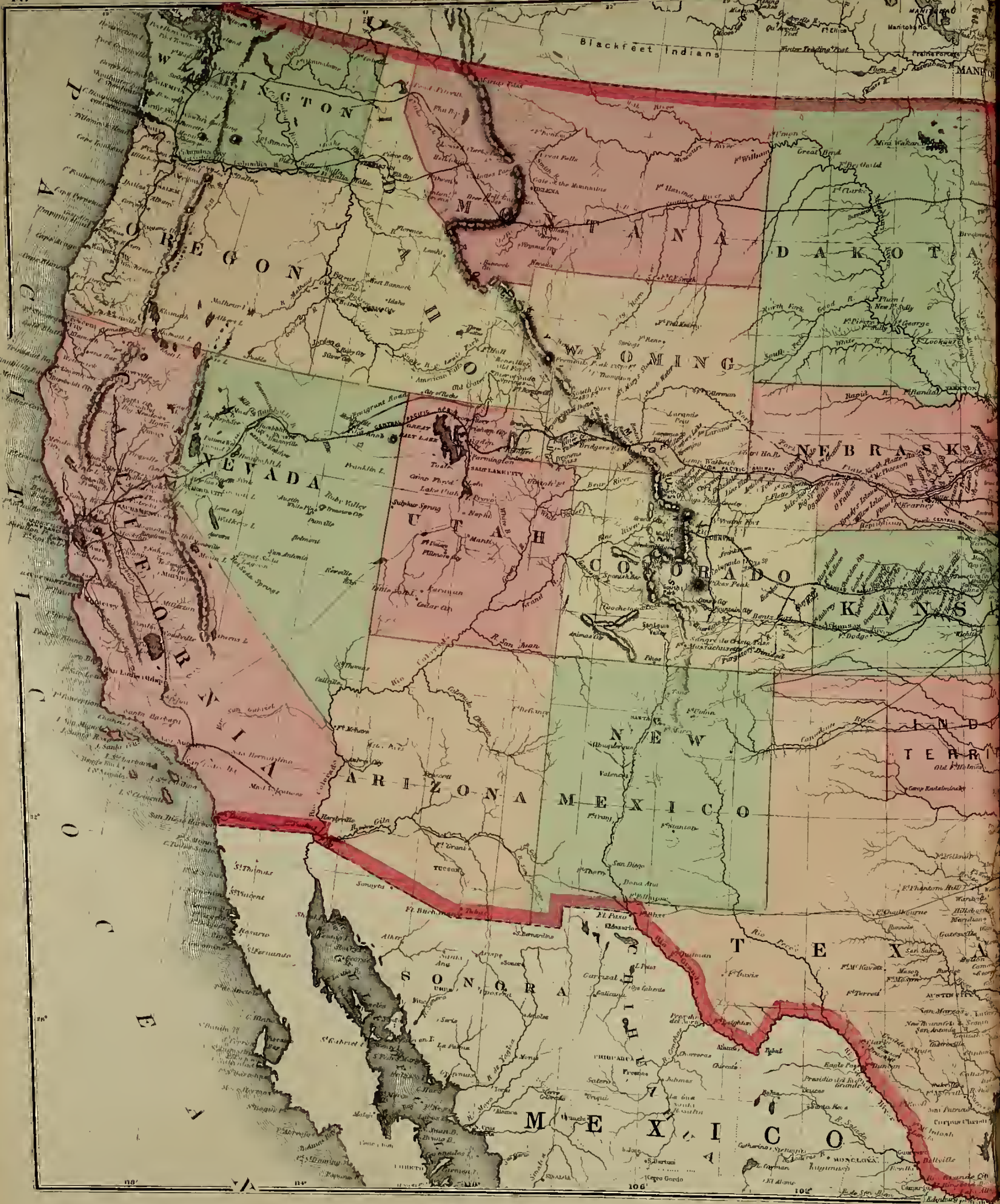

SKETCH MAP
Showing the
TRIANGULATION
OF NEW HAMPSHIRE.
U. S. COAST SURVEY.
E. T. QUIMBY ASST.
1871-3.
Scale: 16 Miles to the inch
ATLANTIC
OCEAN
MASSACHUSETTS


GEOLOGICAL MAP
OF
NEW HAMPSHIRE AND VERMONT
BY C. H. HITCHCOCK
1877.
EXPLANATION OF COLORS.
SEDIMENTARY FORMATIONS
Laurentian
Montalban or Atlantic
Huronian
Kearsarge andalusite group
Rockingham and ferruginous schists
Cambrian clay slates
Cambrian (Potsdam)
Coös group and Calciferous Mica schist
Cambro-Silurian
Taconic schist
Helderberg
ERUPTIVE ROCKS.
Granite and Syenite
Porphyry
Labradorite rock
Scale of Miles:
C A N A D A
Sutton
Potton
Stanstead
Barnston
Barford
Hereford
FRANKLIN
ORLEANS
LAMOILLE
CHITTENDEN
CALEDONIA
ESSEX
COÖS
Lake Memphremagog
Umbagog Lake
LAKE CHAMPLAIN
73°00'
72°30'
72°00'
71°30'
71°00'
45°00'
44°30'

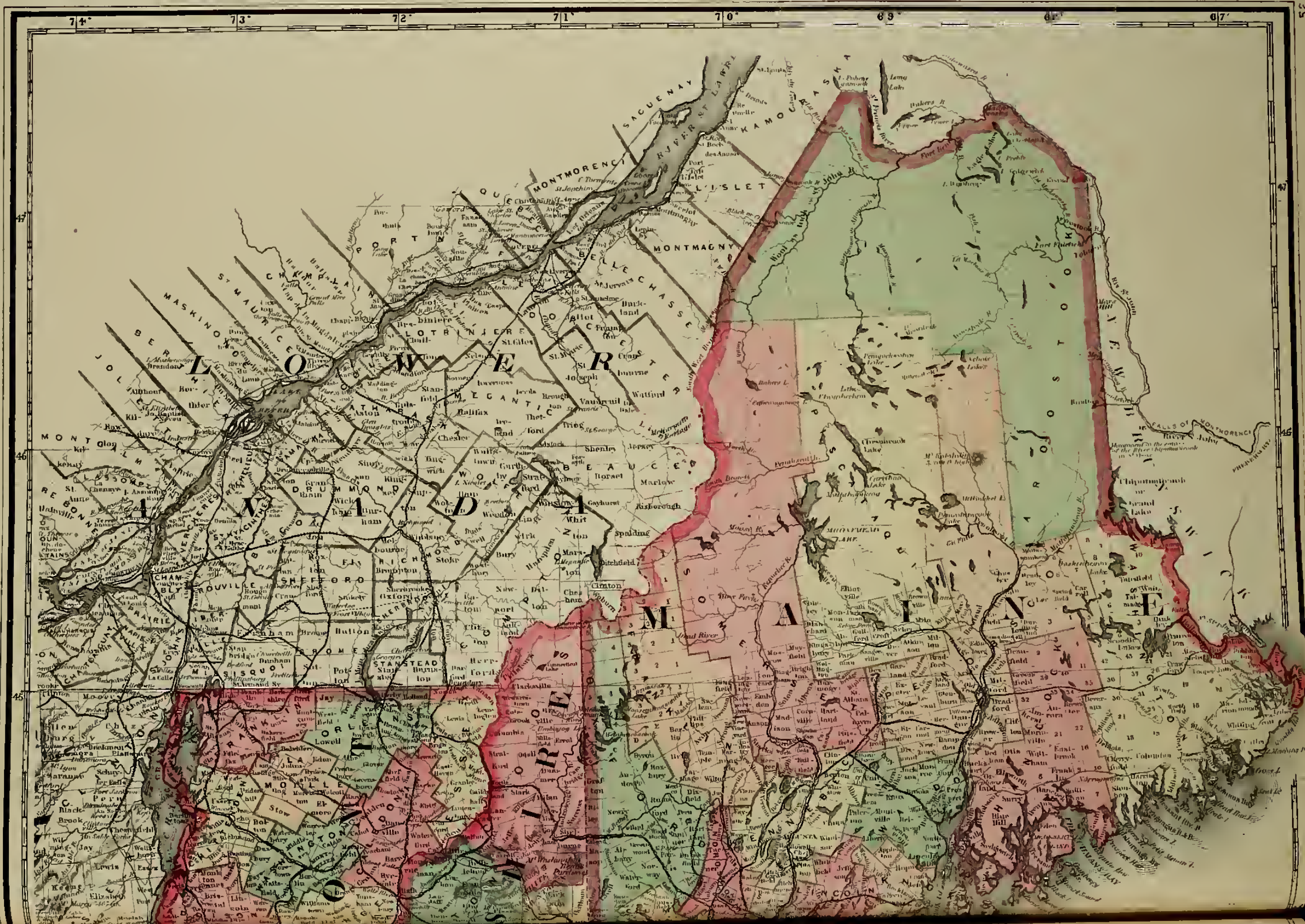

O R A N G E
G R A F T O N
A D D I S O N
R U T L A N D
W I N D S O R
W I N D H A M
C A R O L L
B E L K N A P
M E R R I M A C K
H I L L S B O R O U G H
R O C K I N G H A M
M A S S A C H U S E T T S
N E W
M A
Longitude West from Greenwich
73 00
72 30
72 00
71 30
71 00
44 00
43 30
43 00
Concord
Portsmouth
Hanover
Woodstock
Plymouth
Keene
Dover
Windsor
Peterboro
Nashua
Jaffrey
Dublin
Royalton
Randolph
Bethel
Chelsea
Corinth
Newbury
Haverhill
Fryeburg
Lebanon
Acton
Newfield
Salisbury
Amesbury
Haverhill
Methuen
Dresden
Putnam
Hampton
Granville
Hebron
Salem
Jackson
White Creek
Hoosick
Petersburg
Williamstown
Clarksburg
Monroe
Rowe
Heath
Colerain
Leyden
Guilford
Warwick
Royalston
Winchendon
Ashby
Townsend
Pepperell
Dunstable
Tyngsboro
Dracut

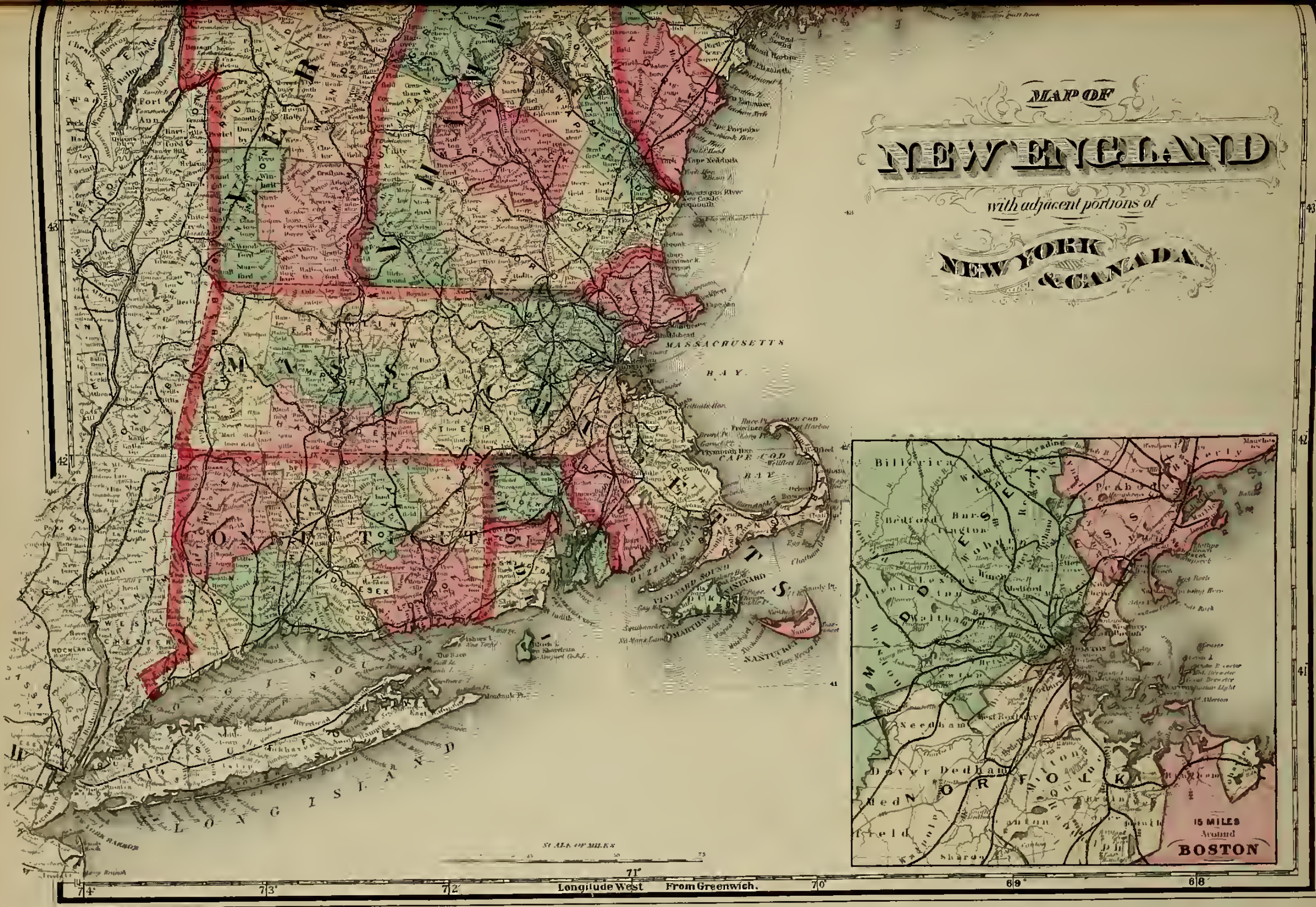

MAP
ILLUSTRATING THE
DISTRIBUTION OF TREES
IN NEW HAMPSHIRE
Upper Limit of Chestnut
White Oak
Red Oak
Hemlock
Spruce and Fir Predominate
Region above Trees
Southern Limit of White Spruce
Arbor Vitæ
Scale of Miles
COOS
GRAFTON
CARROLL
BELKNAP
MERRIMACK
STRAFFORD
ROCKINGHAM
HILLSBOROUGH
CHESHIRE
SULLIVAN
Longitude West from Greenwich


AGRICULTURAL
MAP OF
NEW HAMPSHIRE
Calcareous Soils
Slaty Soils (Conn. River Valley)
Slaty Soils (Coos and Rockingham)
Gneissic and Granitic Soils
Scale of Miles
COOS
GRAFTON
CARROLL
BELKNAP
MERRIMACK
ROCKINGHAM
HILLSBOROUGH
CHESHIRE
Longitude West from Greenwich

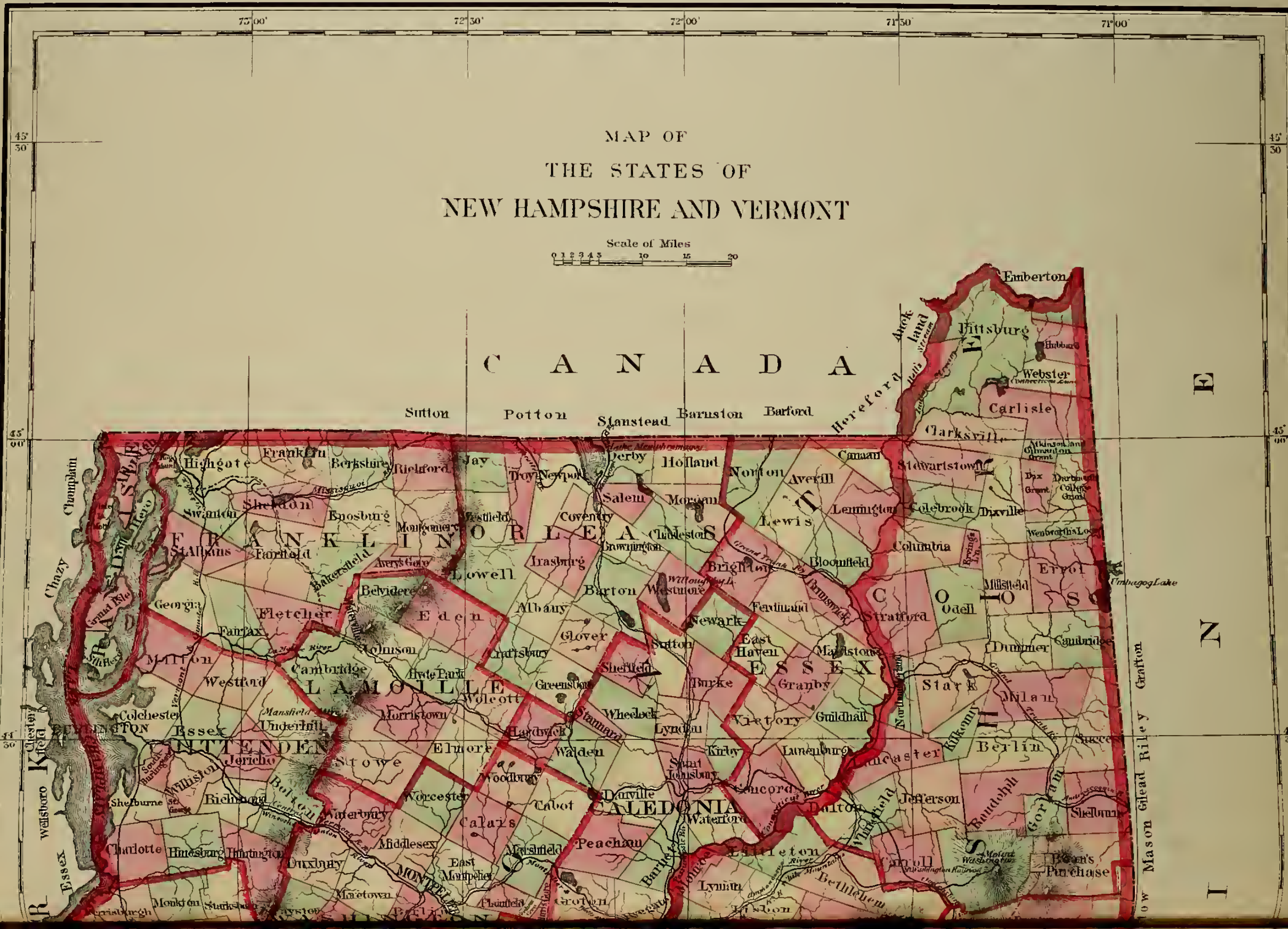

Blackfeet Indians
WASHINGTON
OREGON
IDAHO
MONTANA
DAKOTA
WYOMING
NEBRASKA
NEVADA
UTAH
COLORADO
KANSAS
CALIFORNIA
ARIZONA
NEW MEXICO
TEXAS
SONORA
CHIHUAHUA
MEXICO
PACIFIC OCEAN
GREAT SALT LAKE
SALT LAKE CITY
CENTRAL PACIFIC R.R.
TUCSON
El Paso
San Diego
Carson City
Denver

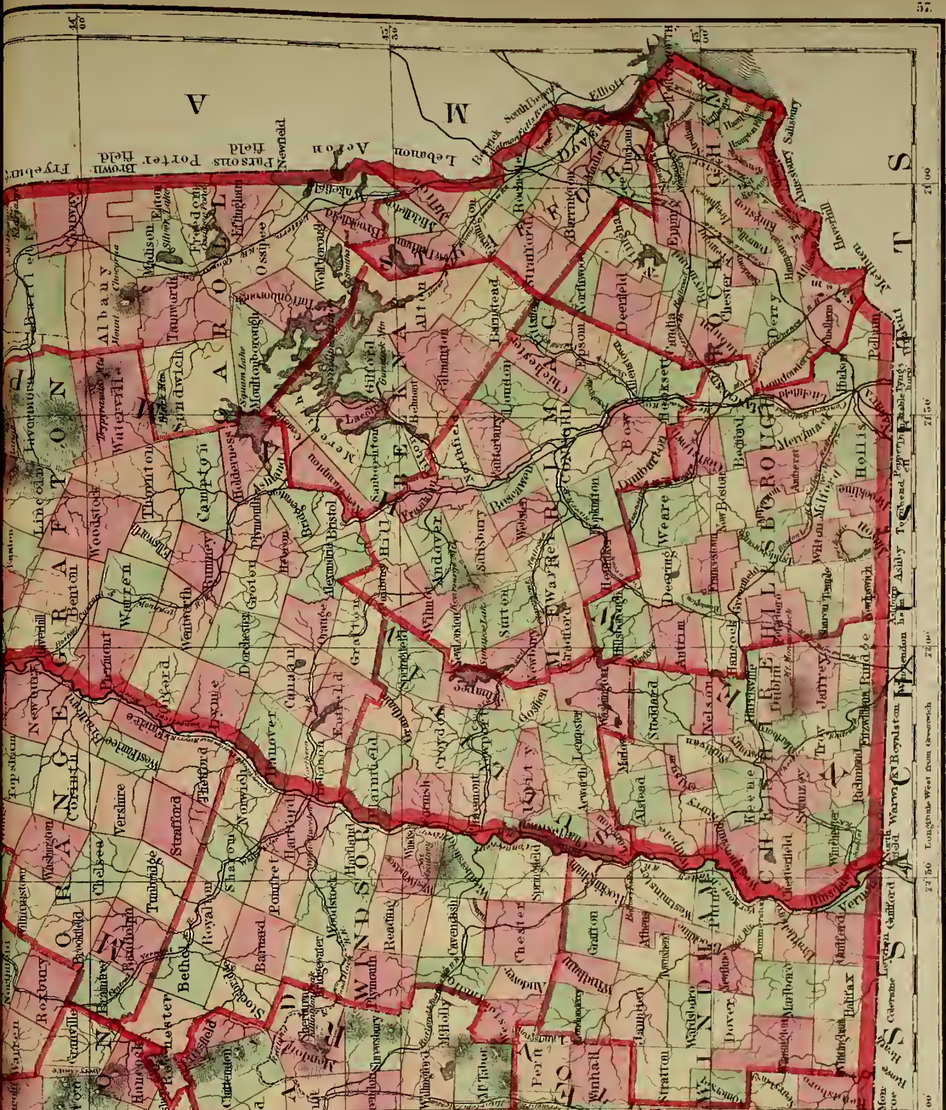

RAIL ROAD MAP OF THE UNITED STATES.
CANADA
QUEBEC
ONTARIO
L. SUPERIOR
L. HURON
LAKE ERIE
LAKE OF THE WOODS
RAINY LAKE
MICHIGAN
WISCONSIN
MAINE
NEW YORK
PENNSYLVANIA
OHIO
INDIANA
ILLINOIS
IOWA
MISSOURI
KENTUCKY
VIRGINIA
W. VIRGINIA
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
ARKANSAS
FLORIDA
ATLANTIC OCEAN
GULF OF MEXICO
Bahama Islands
CHICAGO
94°
90°
86°

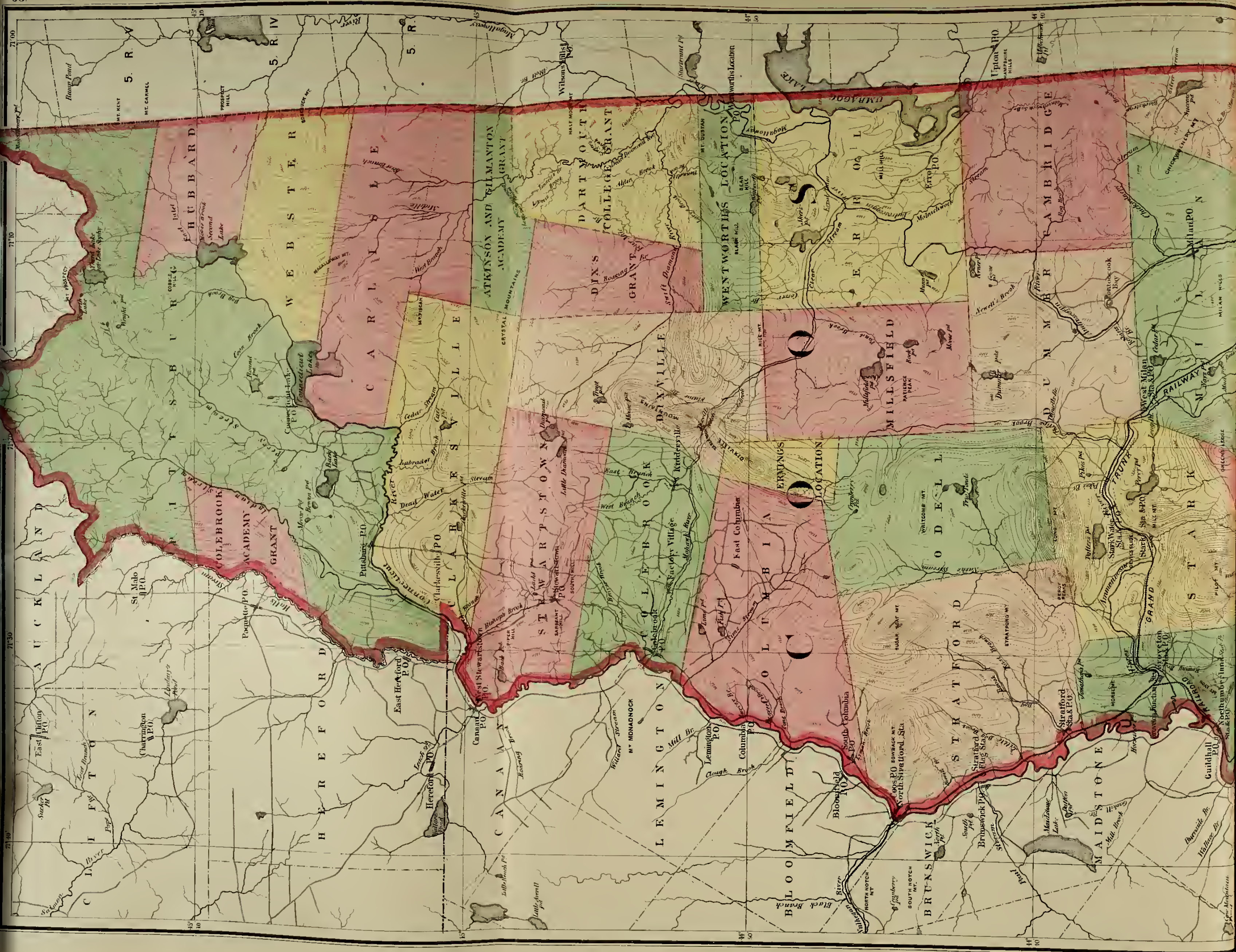

LOWER CANADA
MAINE
NEW BRUNSWICK
AROOSTOOK
PISCATAQUIS
SOMERSET
FRANKLIN
OXFORD
PENOBSCOT
WASHINGTON
HANCOCK
KAMOURASKA
L'ISLET
MONTMAGNY
BELLECHASSE
DORCHESTER
BEAUCE
MEGANTIC
LOTBINIERE
PORTNEUF
QUEBEC
MONTMORENCI
SAGUENAY
CHAMPLAIN
ST MAURICE
MASKINONGE
BERTHIER
JOLIETTE
MONTCALM
L'ASSOMPTION
DRUMMOND
SHEFFORD
ROUVILLE
CHAMBLY
LAPRAIRIE
ST JOHNS
MISSISQUOI
BROME
STANSTEAD
RICHMOND
SHERBROOKE
COMPTON
WOLFE
ARTHABASKA
NICOLET
YAMASKA
ST HYACINTHE
BAGOT
ST LAWRENCE RIVER
FALLS OF MONTMORENCI
74°
73°
72°
71°
70°
69°
68°
67°
47
46
45

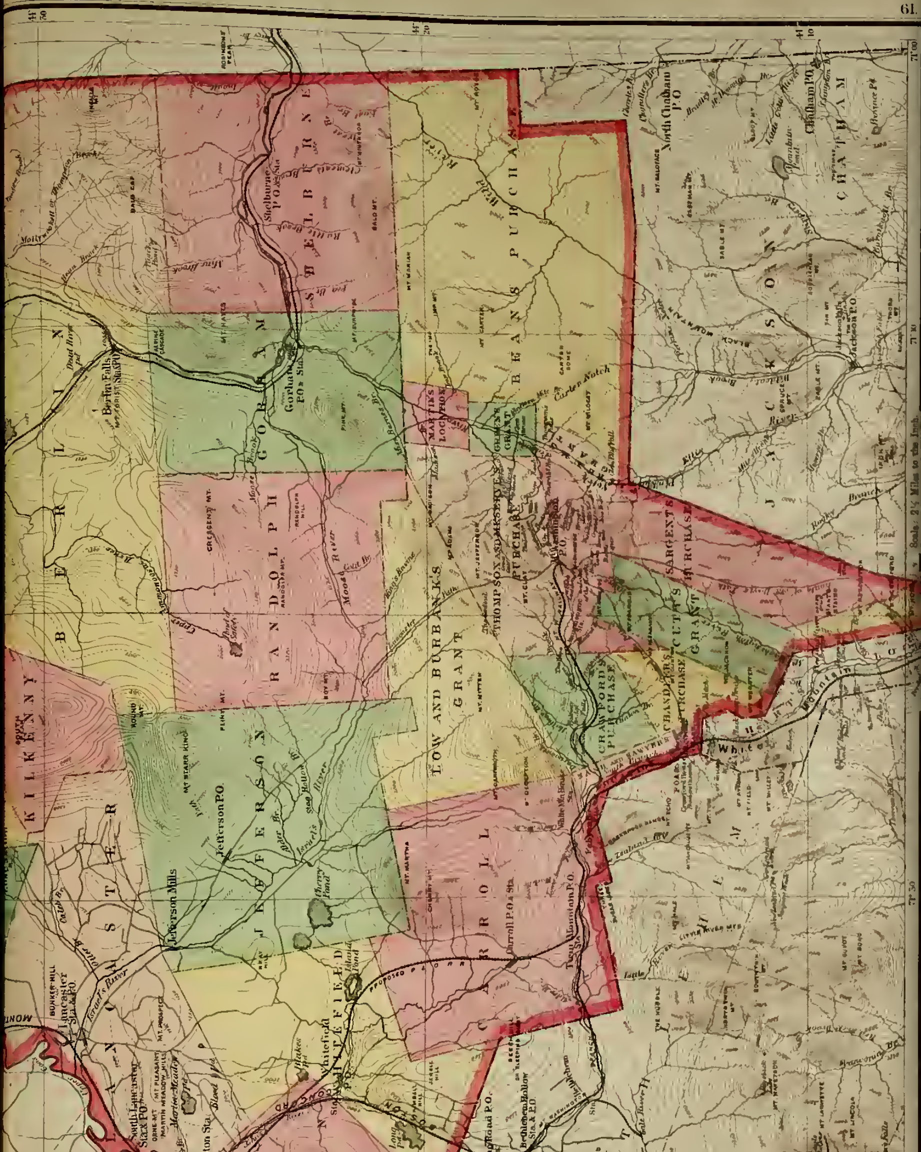


MAP OF
NEW ENGLAND
with adjacent portions of
NEW YORK & CANADA.
MASSACHUSETTS
BAY.
CAPE COD
BAY
LONG ISLAND
BUZZARDS
VINEYARD SOUND
NANTUCKET
SCALE OF MILES
Longitude West From Greenwich.
15 MILES
Around
BOSTON

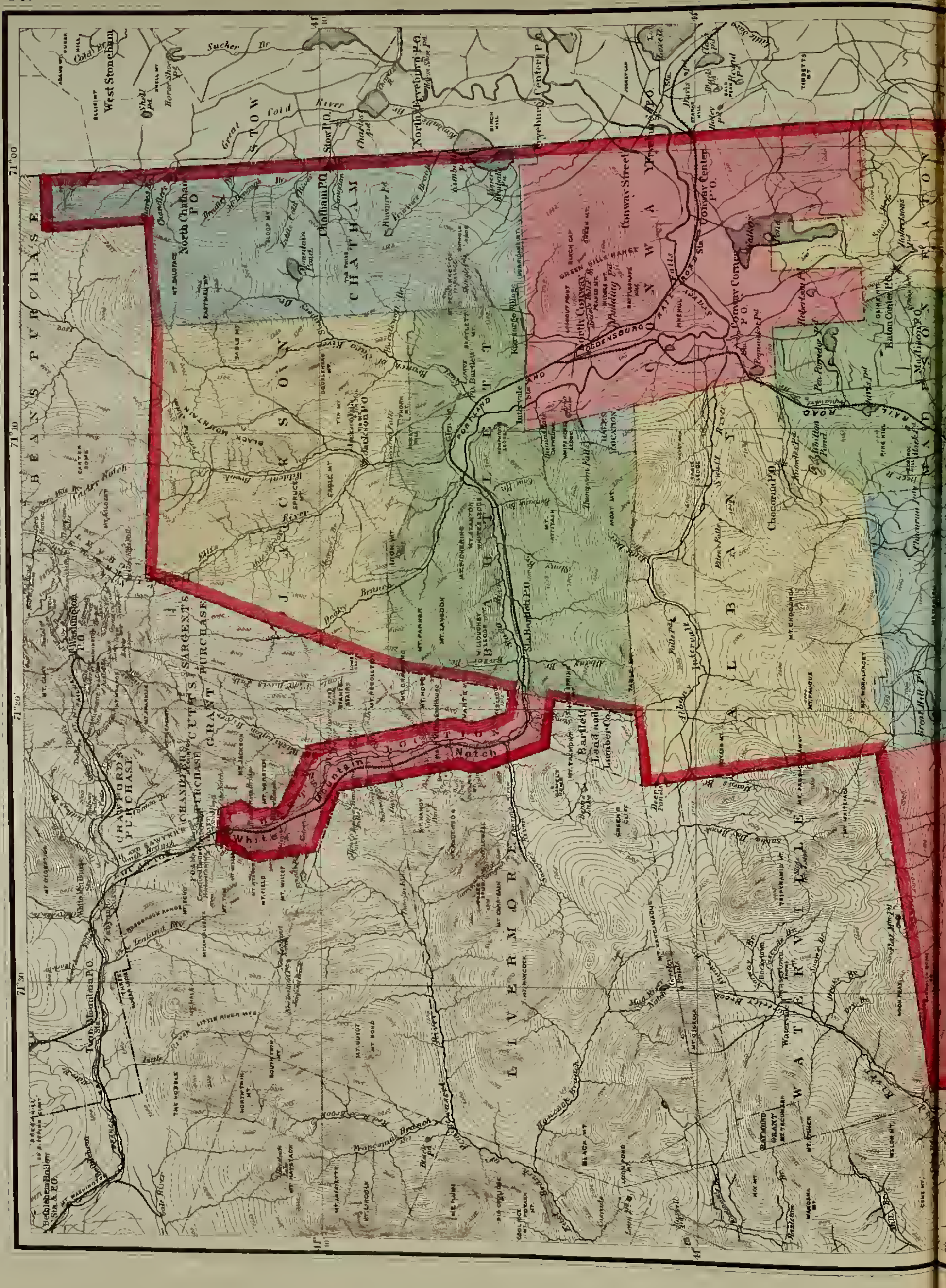

MAP OF
THE STATES OF
NEW HAMPSHIRE AND VERMONT
Scale of Miles
C A N A D A
Sutton
Potton
Stanstead
Barnston
Barford
Hereford
Auckland
FRANKLIN
ORLEANS
LAMOILLE
CALEDONIA
ESSEX
COOS
Highgate
Franklin
Berkshire
Richford
Jay
Troy
Newport
Derby
Holland
Norton
Averill
Canaan
Swanton
Sheldon
Enosburg
Montgomery
Westfield
Coventry
Salem
Morgan
Charleston
Lewis
Lemington
Colebrook
Dixville
St. Albans
Fairfield
Bakersfield
Lowell
Irasburg
Brownington
Brighton
Bloomfield
Columbia
Errol
Georgia
Fletcher
Belvidere
Eden
Albany
Barton
Westmore
Ferdinand
Brunswick
Stratford
Odell
Fairfax
Johnson
Craftsbury
Glover
Newark
East Haven
Maidstone
Dummer
Cambridge
Milton
Westford
Cambridge
Hyde Park
Greensboro
Sheffield
Sutton
Burke
Granby
Stark
Milan
Wolcott
Morristown
Wheelock
Lyndon
Victory
Guildhall
Colchester
Essex
Underhill
Hardwick
Stannard
Elmore
Walden
Kirby
Lunenburg
Lancaster
Kilkenny
Berlin
Success
Jericho
Stowe
Worcester
Woodbury
Cabot
Danville
St. Johnsbury
Concord
Dalton
Whitefield
Jefferson
Randolph
Gorham
Shelburne
Williston
Richmond
Bolton
Waterbury
Calais
Waterford
Shelburne
Charlotte
Hinesburg
Huntington
Duxbury
Middlesex
East Montpelier
Marshfield
Peacham
Littleton
Carroll
Bean's Purchase
Montpelier
Moretown
Plainfield
Groton
Barnet
Lyman
Bethlehem
Monkton
Starksboro
Fayston
Ferrisburgh
Pittsburg
Webster
Hubbard
Carlisle
Clarksville
Stewartstown
Dix Grant
Dartmouth College Grant
Wentworth's Location
Millsfield
Cambridge
Umbagog Lake
Grafton
Riley
Gilead
Mason
Champlain
Chazy
Essex
Wellsboro
Chesterfield
Burlington
Grand Isle
North Hero
Lake Champlain
Mount Washington
Mansfield
Lake Memphremagog
Willoughby L.
Errol
E
N
I


MAINE
MASSACHUSETTS
NEW YORK
Longitude West from Greenwich
Windham
Windsor
Rutland
Orange
Addison
Bennington
Grafton
Carroll
Merrimack
Hillsborough
Cheshire
Sullivan
Belknap
Strafford
Rockingham
Concord
Keene
Hanover
Claremont
Peterboro
Nashua
Dover
Lebanon
Brattleboro
Manchester
Woodstock
Bethel
Hollis
Pelham
Jaffrey
Dublin
Troy
Hinsdale
Putney
Chester
Springfield
Plymouth
Bristol
Andover
Salisbury
Weare
Deering
Antrim
Stoddard
Nelson
Winchester
Richmond
Chesterfield
Walpole
Alstead
Acworth
Lempster
Goshen
Newport
Croydon
Plainfield
Cornish
Enfield
Canaan
Orange
Dorchester
Wentworth
Warren
Benton
Haverhill
Piermont
Orford
Lyme
Hanover
Norwich
Sharon
Royalton
Barnard
Pomfret
Hartford
Hartland
Reading
Cavendish
Ludlow
Weston
Andover
Windham
Grafton
Athens
Townshend
Newfane
Dover
Wardsboro
Jamaica
Stratton
Winhall
Peru
Landgrove
Dorset
Danby
Wallingford
Clarendon
Rutland
Ira
Poultney
Wells
Pawlet
Rupert
Sandgate
Arlington
Sunderland
Manchester
Woodford
Stamford
Pownal
Readsboro
Whitingham
Halifax
Guilford
Vernon
Marlboro
Wilmington
Somerset
Searsburg
Shaftsbury
Glastenbury
Bennington
Hoosick
White Creek
Jackson
Salem
Hebron
Granville
Hampton
Whitehall
Dresden
Putnam
Ticonderoga
Addison
Bridport
Shoreham
Orwell
Benson
Fairhaven
Castleton
Hubbardton
Sudbury
Whiting
Cornwall
Salisbury
Leicester
Brandon
Pittsford
Chittenden
Pittsfield
Stockbridge
Rochester
Hancock
Granville
Ripton
Middlebury
Weybridge
New Haven
Roxbury
Braintree
Brookfield
Randolph
Bethel
Tunbridge
Chelsea
Washington
Williamstown
Vershire
Corinth
Topsham
Newbury
Bradford
Fairlee
West Fairlee
Thetford
Strafford
Lincoln
Woodstock
Thornton
Campton
Rumney
Ellsworth
Holderness
Ashland
Bridgewater
Hebron
Groton
Alexandria
Sandwich
Tamworth
Albany
Madison
Eaton
Conway
Effingham
Ossipee
Wolfborough
Tuftonborough
Moultonborough
Meredith
Gilford
Gilmanton
Alton
New Durham
Farmington
Milton
Wakefield
Barnstead
Pittsfield
Northwood
Deerfield
Candia
Chester
Derry
Londonderry
Windham
Salem
Atkinson
Hampstead
Kingston
Exeter
Hampton
Epping
Raymond
Nottingham
Lee
Durham
Madbury
Barrington
Rochester
Somersworth
Rollinsford
Berwick
Lebanon
Acton
Parsons field
Porter
Brownfield
Fryeburg
Elliott
Kittery
Portsmouth
Hopkinton
Henniker
Hillsborough
Bradford
Newbury
Sutton
Warner
Webster
Boscawen
Canterbury
Loudon
Chichester
Pembroke
Allenstown
Hooksett
Bow
Dunbarton
Goffstown
Bedford
Merrimack
Amherst
Milford
Wilton
Lyndeborough
Francestown
New Boston
Greenfield
Temple
New Ipswich
Mason
Brookline
Greenville
Hancock
Harrisville
Sullivan
Gilsum
Surry
Marlow
Washington
Sunapee
Springfield
Wilmot
Danbury
Hill
New Hampton
Sanbornton
Northfield
Franklin
Tilton
Belmont
Laconia
Waterville
Livermore
Williamstown
Clarksburg
Monroe
Rowe
Heath
Colerain
Leyden
Gilford
Bernardston
Northfield
Warwick
Royalston
Winchendon
Ashburnham
Ashby
Townsend
Pepperell
Dunstable
Tyngsboro
Dracut
Methuen
Haverhill
Amesbury
Salisbury

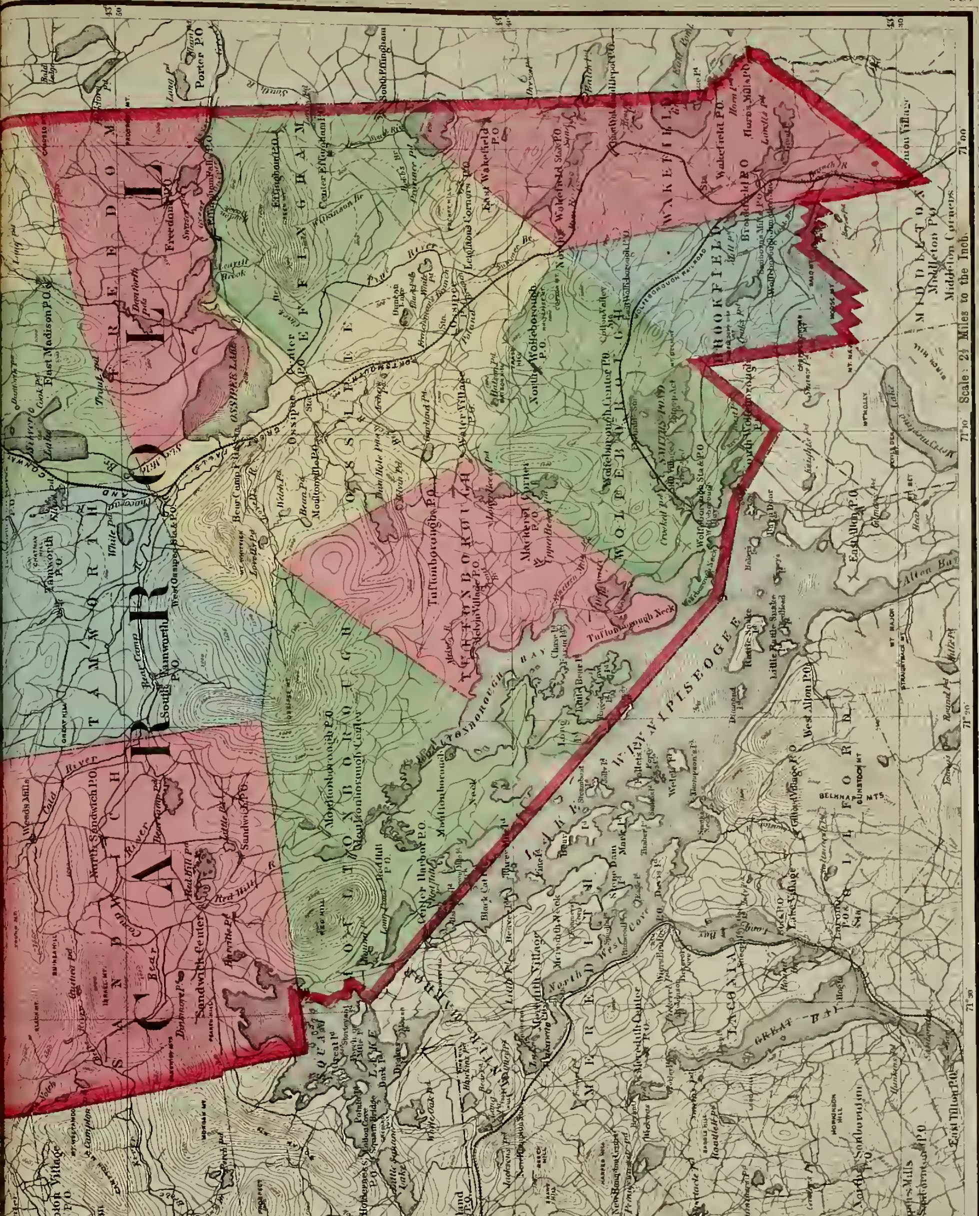

PITTSBURG
HUBBARD
WEBSTER
CARLISLE
CLARKESVILLE
STEWARTSTOWN
COLEBROOK
COLUMBIA
DIXVILLE
DIX'S GRANT
DARTMOUTH COLLEGE GRANT
ATKINSON AND GILMANTON ACADEMY GRANT
WENTWORTH'S LOCATION
ERROL
CAMBRIDGE
DUMMER
MILLSFIELD
ODELL
STRATFORD
STARK
MILAN
COLEBROOK ACADEMY GRANT
ERVING'S LOCATION
COOS
AUCKLAND
HEREFORD
CLIFTON
CANAAN
LEMINGTON
BLOOMFIELD
BRUNSWICK
MAIDSTONE
GRAND TRUNK RAILWAY
Connecticut Lake
Umbagog Lake
Pittsburg P.O.
Clarkesville P.O.
Stewartstown P.O.
West Stewartstown P.O.
Colebrook P.O.
Kidderville
Factory Village
East Columbia
Columbia P.O.
South Columbia P.O.
North Stratford Sta.
Stratford Sta. & P.O.
Errol P.O.
Milan P.O.
West Milan Sta. & P.O.
Stark Sta. & P.O.
Groveton Junction
Northumberland Sta. & P.O.
Canaan P.O.
Lemington P.O.
Bloomfield P.O.
Guildhall P.O.
Hereford P.O.
East Hereford P.O.
Upton P.O.
Wilson's Mills P.O.

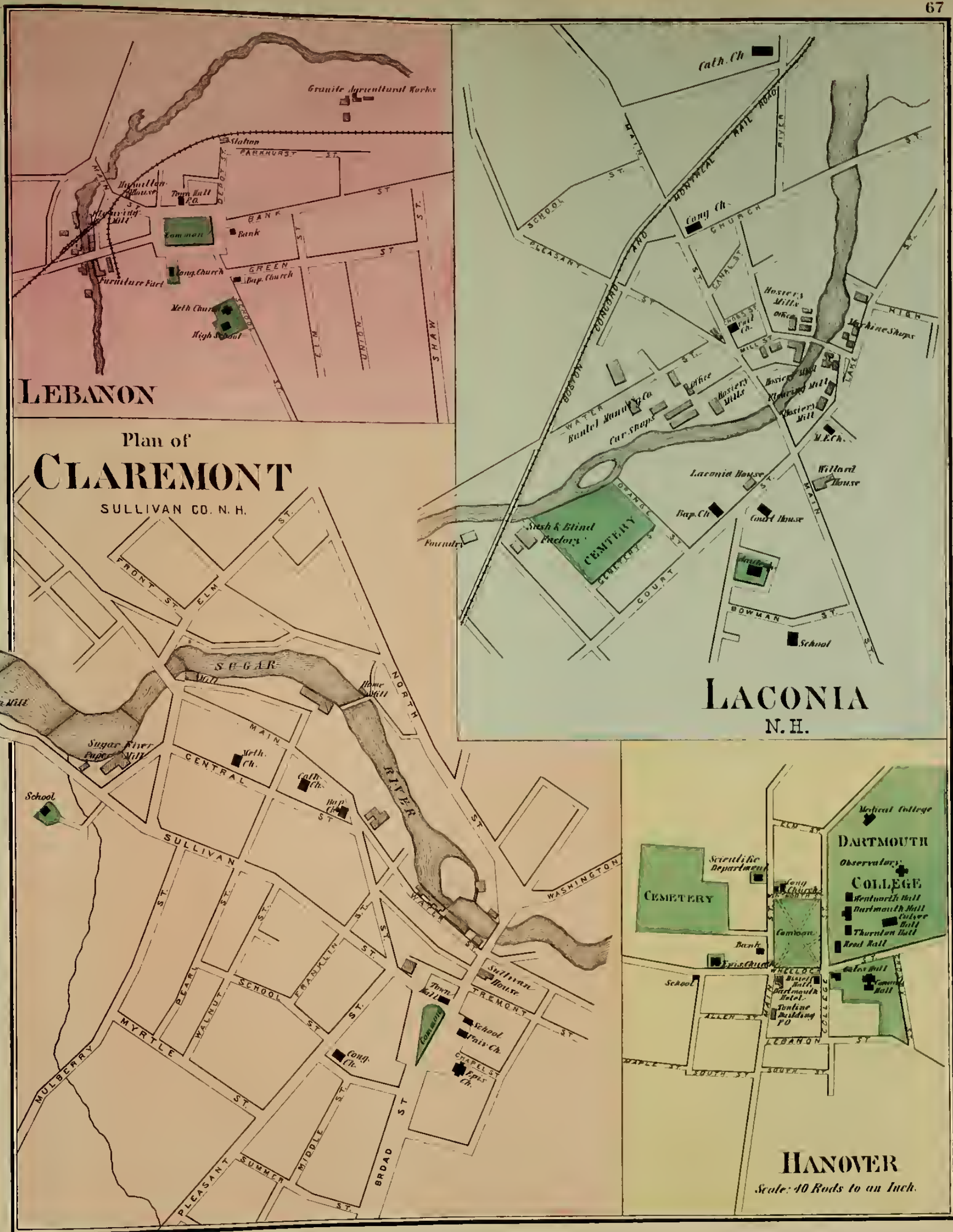


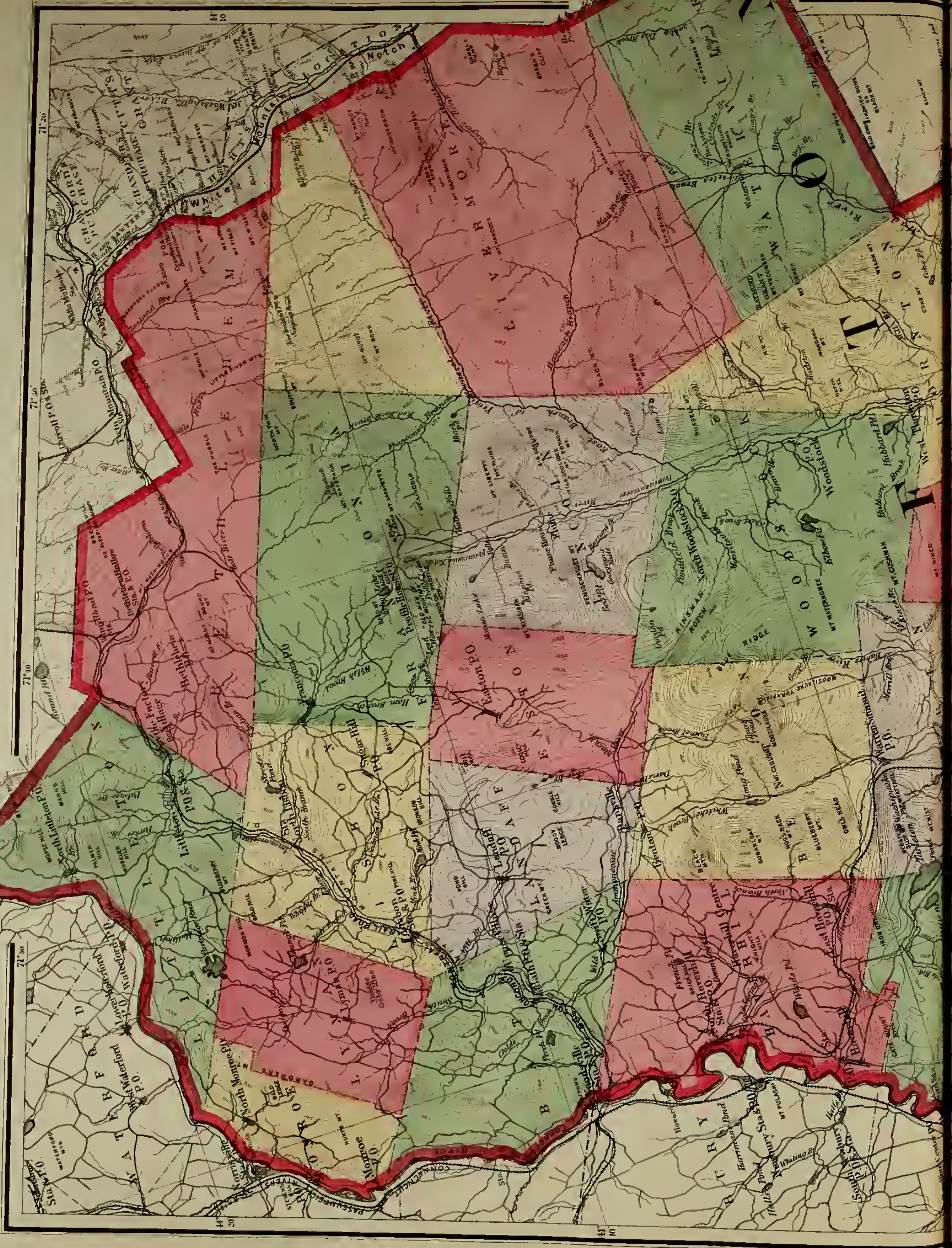
KILKENNY
BERLIN
Berlin Falls
SHELBURNE
Shelburne P.O. & Sta.
GORHAM
Gorham P.O. & Sta.
RANDOLPH
JEFFERSON
Jefferson P.O.
Jefferson Mills
LANCASTER
Lancaster Sta. & P.O.
South Lancaster Sta. & P.O.
WHITEFIELD
Whitefield
DALTON
Dalton P.O.
South Dalton P.O.
CARROLL
Carroll P.O. & Sta.
Twin Mountain P.O.
LOW AND BURBANK'S GRANT
THOMPSON AND MESERVE'S PURCHASE
BEANS PURCHASE
MARTIN'S LOCATION
GREEN'S GRANT
CRAWFORD PURCHASE
CHANDLER'S PURCHASE
CUTT'S GRANT
SARGENT'S PURCHASE
JACKSON
Jackson P.O.
CHATHAM
Chatham P.O.
North Chatham P.O.
Carter Notch
Notch
Wing Road P.O.
Bethlehem Hollow Sta. & P.O.
Lunenburg Corner P.O.
Profile House
Israel's River
Moose River
Cherry Pond
Scale: 2¼ Miles to the Inch.



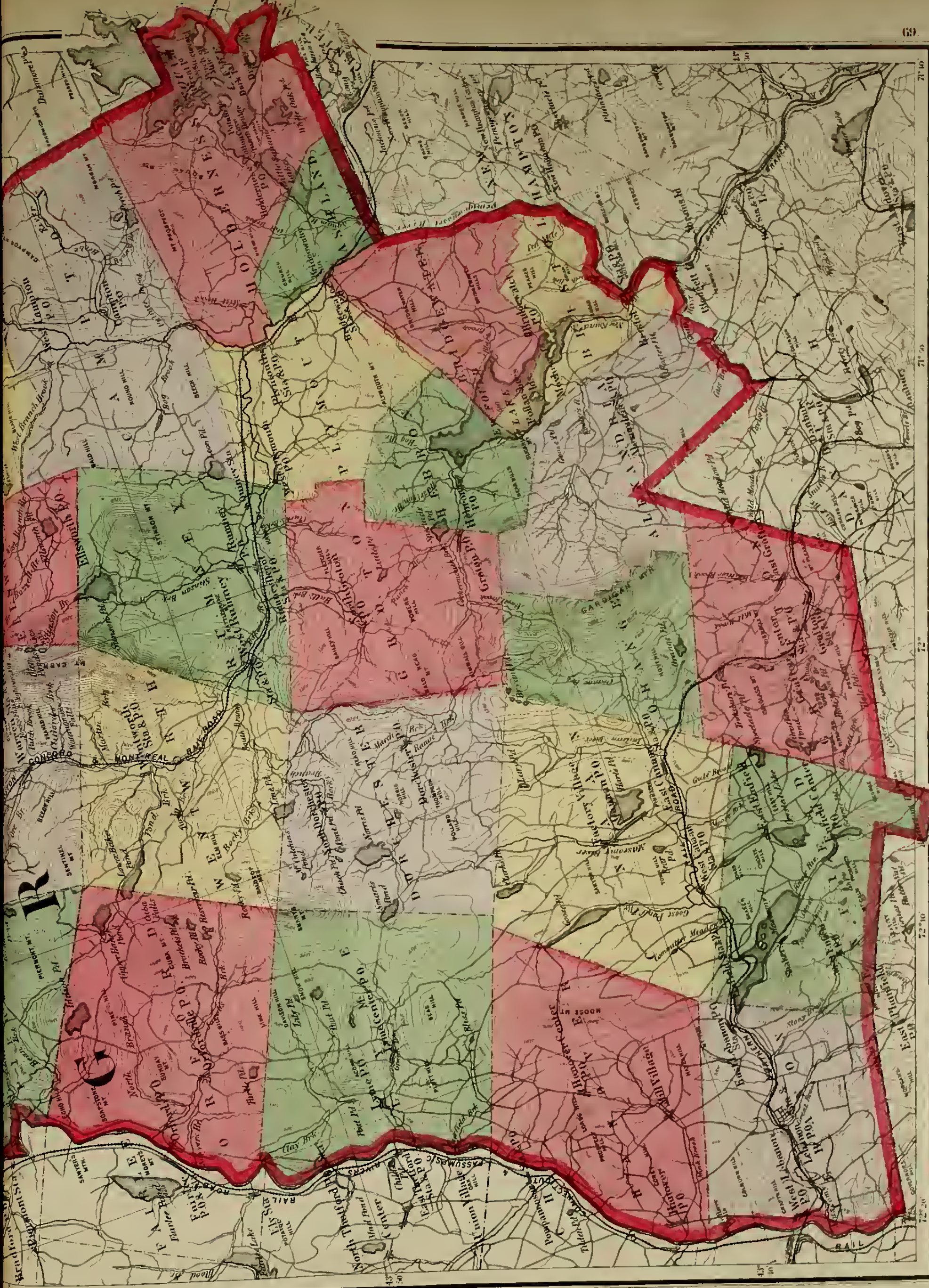
West Stoneham
BEANS PURCHASE
North Chatham P.O.
Chatham P.O.
CHATHAM
JACKSON
CONWAY
Conway Street
Conway Center P.O.
North Conway
BARTLETT
Bartlett P.O.
ALBANY
Chocorua P.O.
LIVERMORE
WATERVILLE
CRAWFORDS PURCHASE
SARGENTS PURCHASE
CUTTS GRANT
Twin Mountain P.O.
Bethlehem Hollow Sta. & P.O.
Eaton Center P.O.
Notch
White

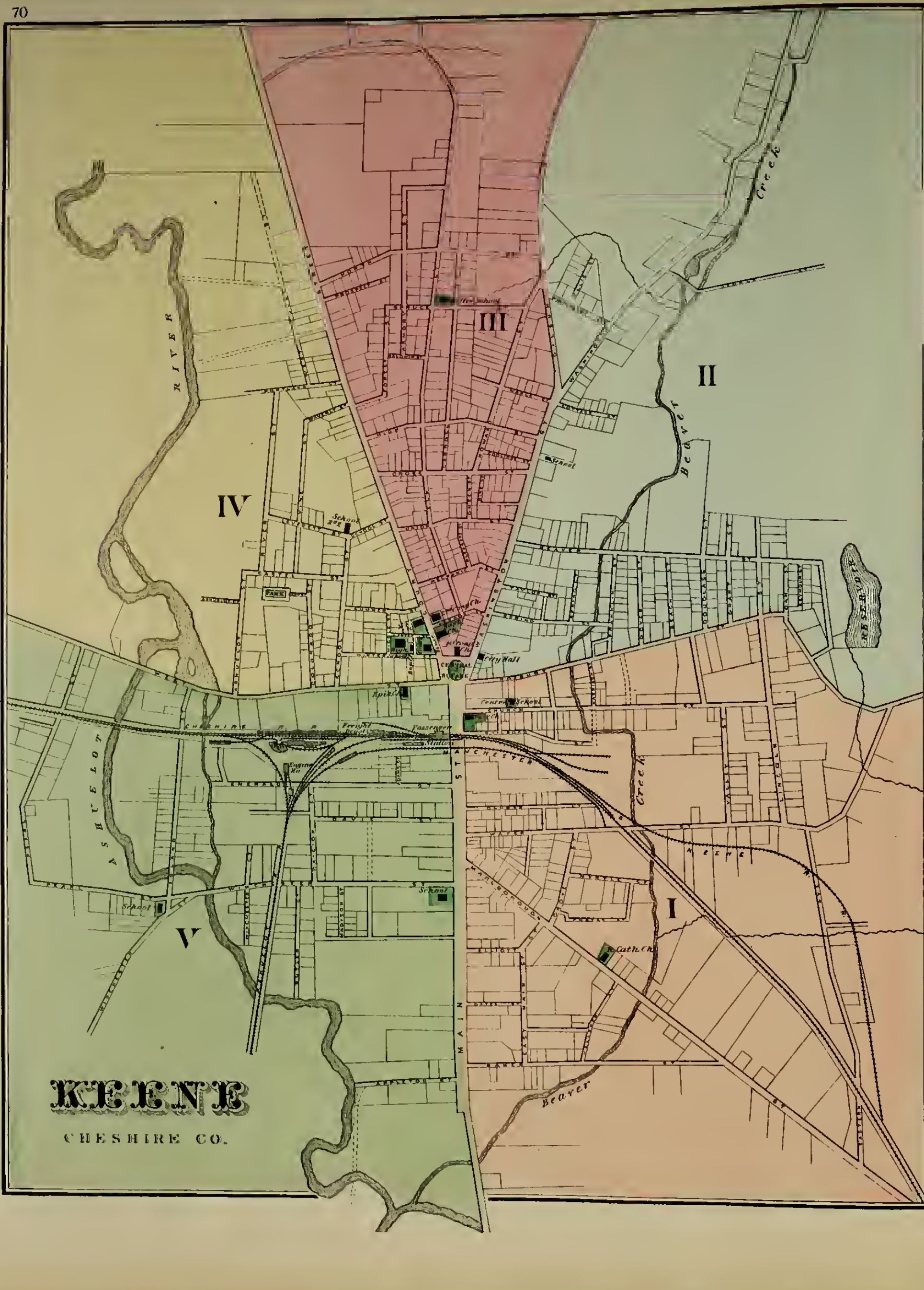

CARROLL
TAMWORTH
SANDWICH
FREEDOM
EFFINGHAM
OSSIPEE
MOULTONBOROUGH
TUFTONBOROUGH
WOLFEBOROUGH
WAKEFIELD
BROOKFIELD
MIDDLETON
LAKE WINNIPISEOGEE
SQUAM LAKE
OSSIPEE LAKE
Scale: 2½ Miles to the Inch.

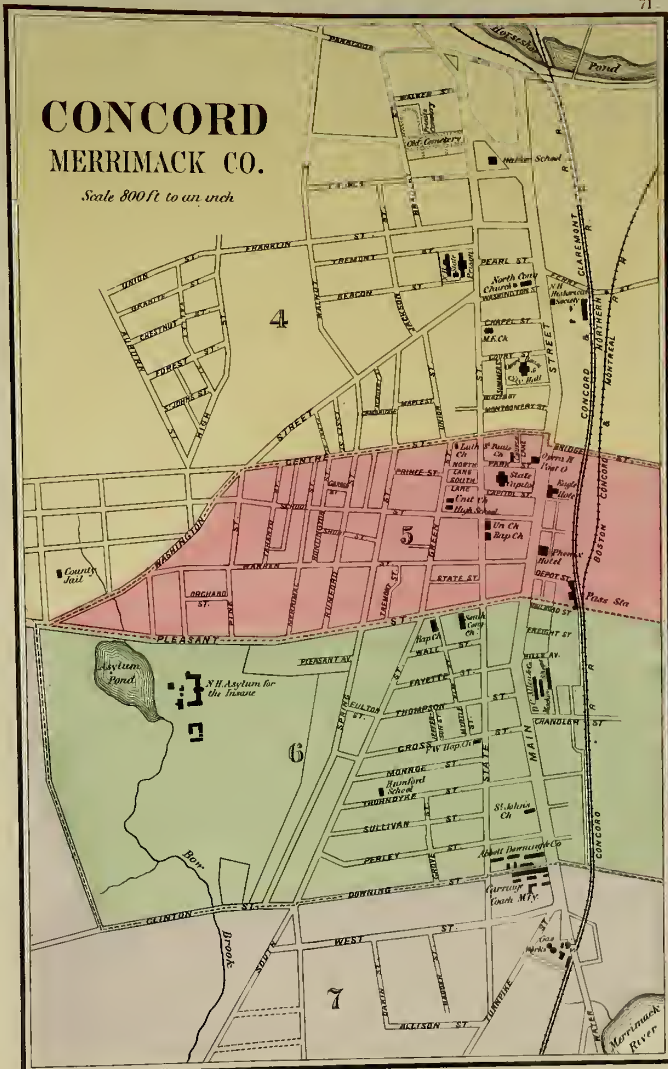

LEBANON
Granite Agricultural Works
Station
PARKHURST ST.
Town Hall
P.O.
Common
Bank
BANK ST.
GREEN ST.
Cong. Church
Bap. Church
Furniture Fact.
Meth. Church
High School
SCHOOL ST.
UNION
SHAW
Plan of
CLAREMONT
SULLIVAN CO. N. H.
FRONT ST.
ELM
SUGAR RIVER
NORTH ST.
MAIN ST.
CENTRAL ST.
Meth. Ch.
Cath. Ch.
Bap. Ch.
School
SULLIVAN ST.
WASHINGTON
WATER
Sullivan House
Town Hall
TREMONT ST.
School
Univ. Ch.
Cong. Ch.
Common
CHAPEL ST.
Epis. Ch.
SCHOOL ST.
FRANKLIN ST.
PEARL ST.
WALNUT ST.
MYRTLE ST.
MULBERRY
MIDDLE ST.
BROAD ST.
PLEASANT ST.
SUMMER ST.
Cath. Ch.
BOSTON CONCORD AND MONTREAL RAIL ROAD
MAIN ST.
SCHOOL ST.
PLEASANT ST.
Cong. Ch.
CHURCH ST.
CANAL ST.
RIVER
Hosiery Mills
HIGH ST.
Machine Shops
MILL ST.
LAKE ST.
WATER ST.
Car Shops
Hosiery Mills
Hosiery Mill
M.E. Ch.
Laconia House
Willard House
Bap. Ch.
Court House
Sash & Blind Factory
CEMETERY
Foundry
ORANGE ST.
COURT
BOWMAN ST.
School
LACONIA
N. H.
Medical College
DARTMOUTH
Observatory
COLLEGE
Wentworth Hall
Dartmouth Hall
Thornton Hall
Reed Hall
Culver Hall
ELM ST.
Scientific Department
CEMETERY
Cong. Church
Common
Bank
Epis. Church
School
Dartmouth Hotel
Tontine Building
P.O.
ALLEN ST.
LEBANON ST.
SOUTH ST.
MAPLE ST.
COLLEGE ST.
HANOVER
Scale: 40 Rods to an Inch.

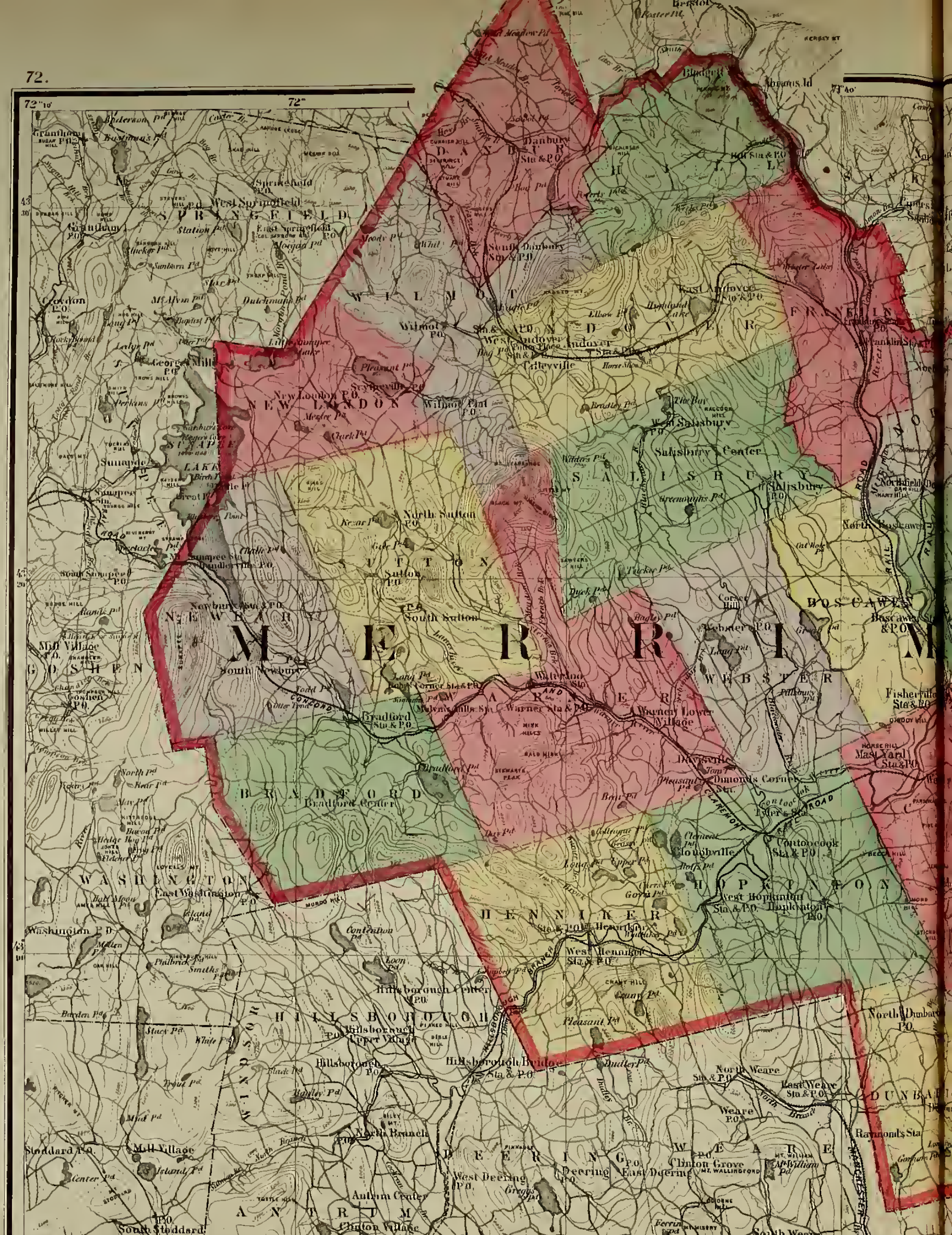


LIVERMORE
WATERVILLE
THORNTON
WOODSTOCK
North Woodstock P.O.
Woodstock P.O.
LINCOLN
FRANCONIA
Franconia P.O.
EASTON
Easton P.O.
BETHLEHEM
Bethlehem P.O.
LITTLETON
Littleton P.O. & Sta.
North Littleton P.O.
LISBON
LYMAN
Lyman P.O.
MONROE
Monroe P.O.
North Monroe P.O.
LANDAFF
BATH
BENTON
HAVERHILL
Haverhill Centre
East Haverhill P.O. & Sta.
Warren Summit
WATERFORD
West Waterford P.O.
Lower Waterford P.O.
Twin Mountain P.O.
Profile House
Kinsman Notch
White Mountains Notch
Connecticut River
Passumpsic River
Ammonoosuc River
Mad River
Hancock Branch
Gale River
Wild Ammonoosuc River
Baker River
71°20
71°30
71°40
71°50
44°10
44°20

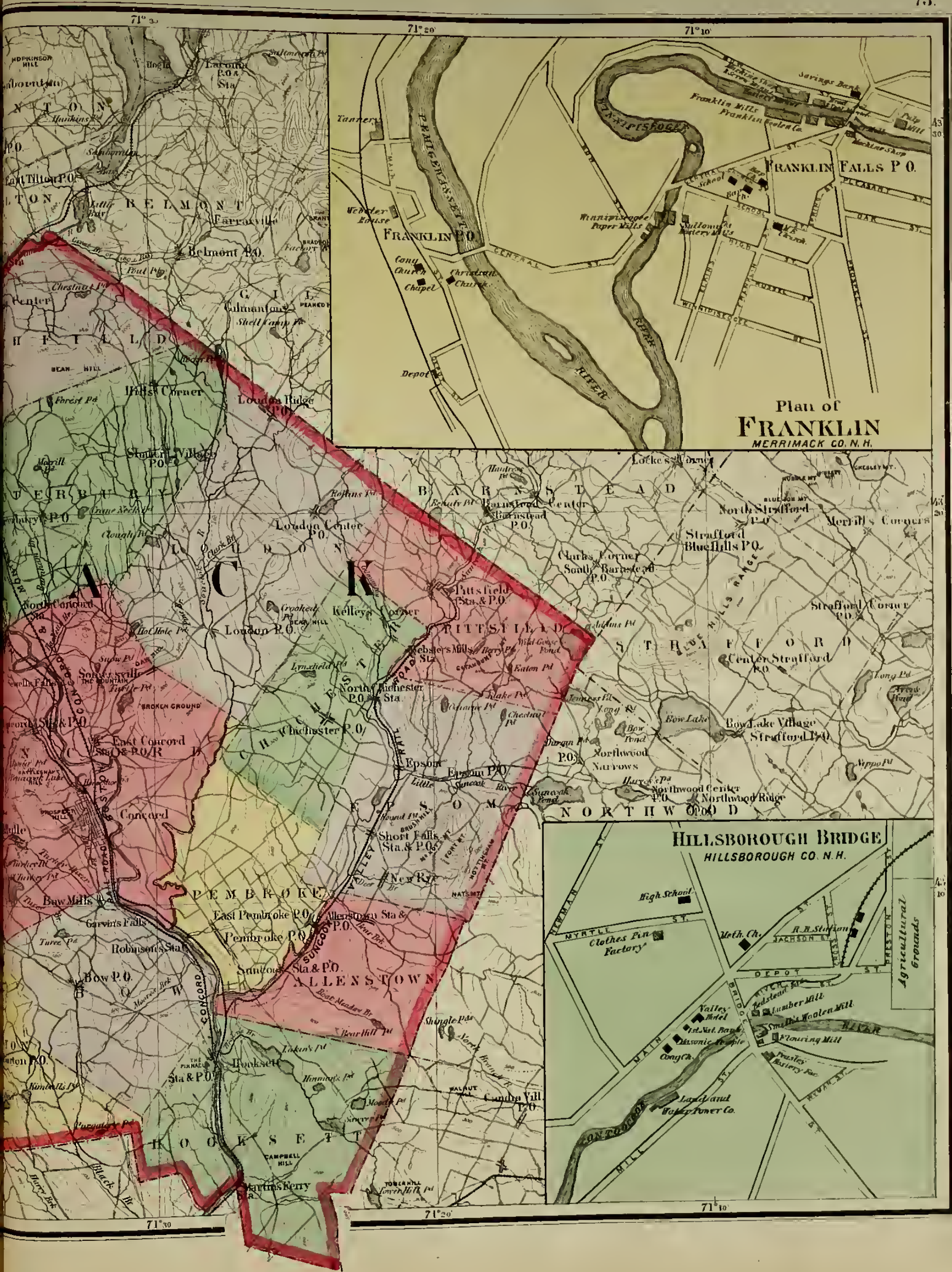


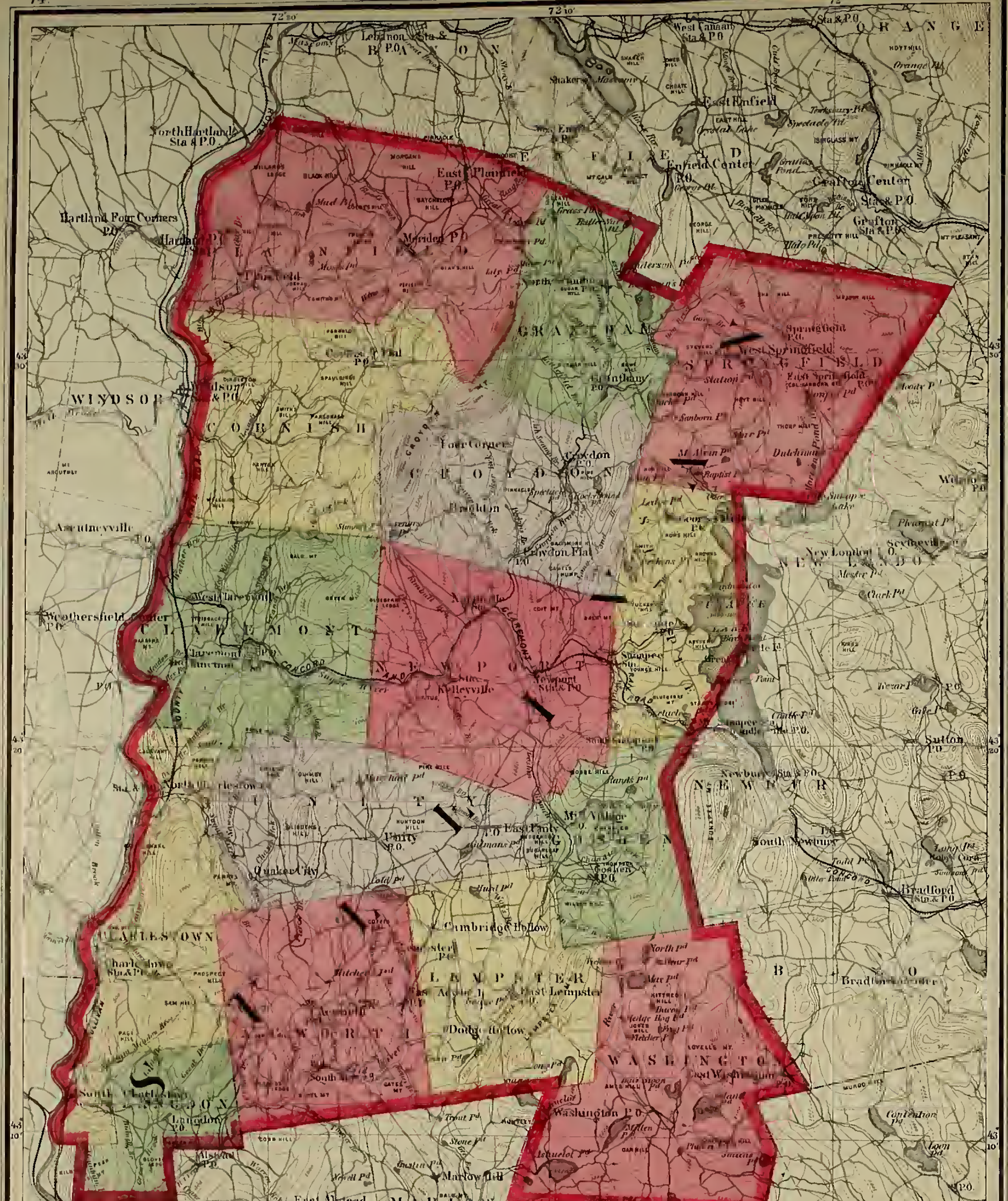

KEENE
CHESHIRE CO.
I
II
III
IV
V
MAIN ST
WASHINGTON
ASHUELOT
RIVER
Beaver Creek
Creek
RESERVOIR
CHESHIRE R.R.
MANCHESTER
KEENE
MARLBOROUGH
City Hall
Central School
School
High School
Cath. Ch.
PARK
Freight Depot
Passenger Station
Engine Ho.

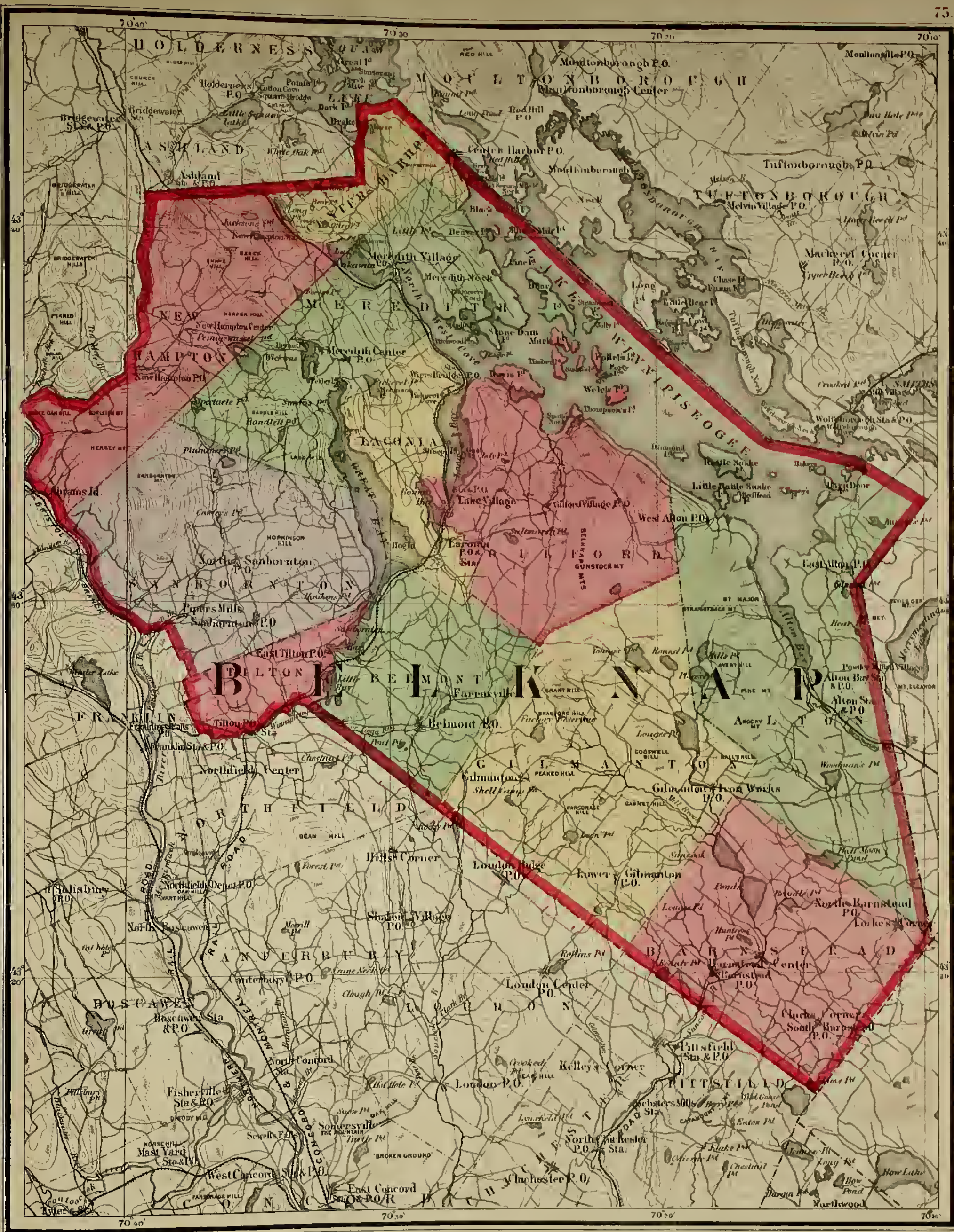

CONCORD
MERRIMACK CO.
Scale 800 ft to an inch
4
5
6
7
Horseshoe Pond
Old Cemetery
North Cong Church
N.H. Historical Society
M.E. Ch.
City Hall
State Capitol
Eagle Hotel
Unit Ch
High School
Un Ch
Bap Ch
Phenix Hotel
Pass Sta
County Jail
Asylum Pond
N.H. Asylum for the Insane
Rumford School
St. John's Ch
Abbott Downing & Co
Carriage Coach Mfy.
Gas Works
Bow Brook
Merrimack River
FRANKLIN ST.
TREMONT ST.
PEARL ST.
BEACON ST.
WASHINGTON ST.
CHAPEL ST.
COURT ST.
MONTGOMERY ST.
CENTRE ST.
BRIDGE ST.
PRINCE ST.
CAPITOL ST.
SCHOOL ST.
WARREN ST.
STATE ST.
DEPOT ST.
ORCHARD ST.
PLEASANT ST.
PLEASANT AV.
RAILROAD ST.
FREIGHT ST.
WALL ST.
FAYETTE ST.
FULTON ST.
THOMPSON ST.
CHANDLER ST.
CROSS ST.
MONROE ST.
THORNDYKE ST.
SULLIVAN ST.
PERLEY ST.
DOWNING ST.
CLINTON ST.
WEST ST.
ALLISON ST.
UNION ST.
GRANITE ST.
CHESTNUT ST.
FOREST ST.
ST. JOHNS ST.
AUBURN ST.
HIGH ST.
WALNUT ST.
JACKSON ST.
MAIN ST.
STATE ST.
SPRING ST.
SOUTH ST.
TURNPIKE ST.
WATER ST.
CONCORD & CLAREMONT R.R.
CONCORD & NORTHERN R.R.
CONCORD & MONTREAL R.R.
BOSTON & CONCORD R.R.

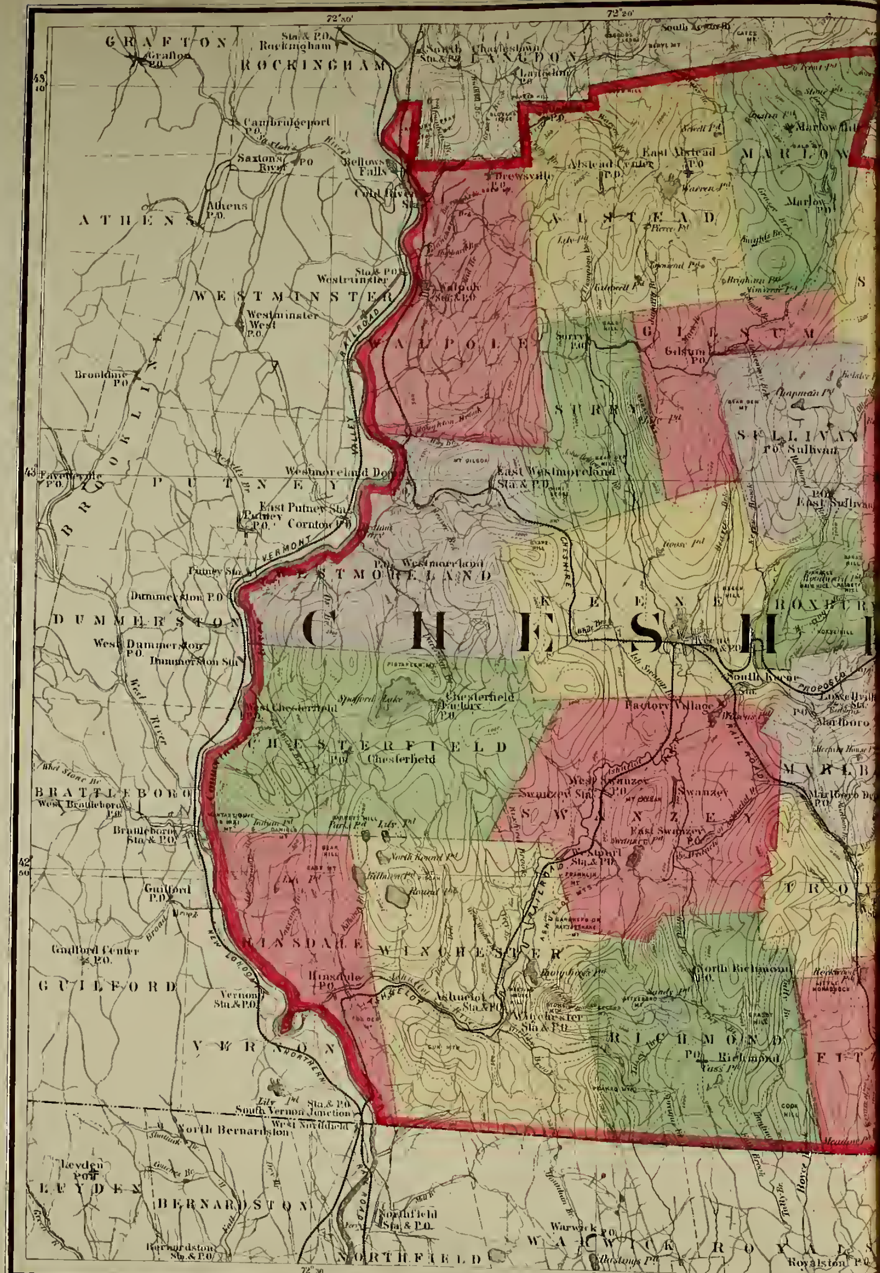


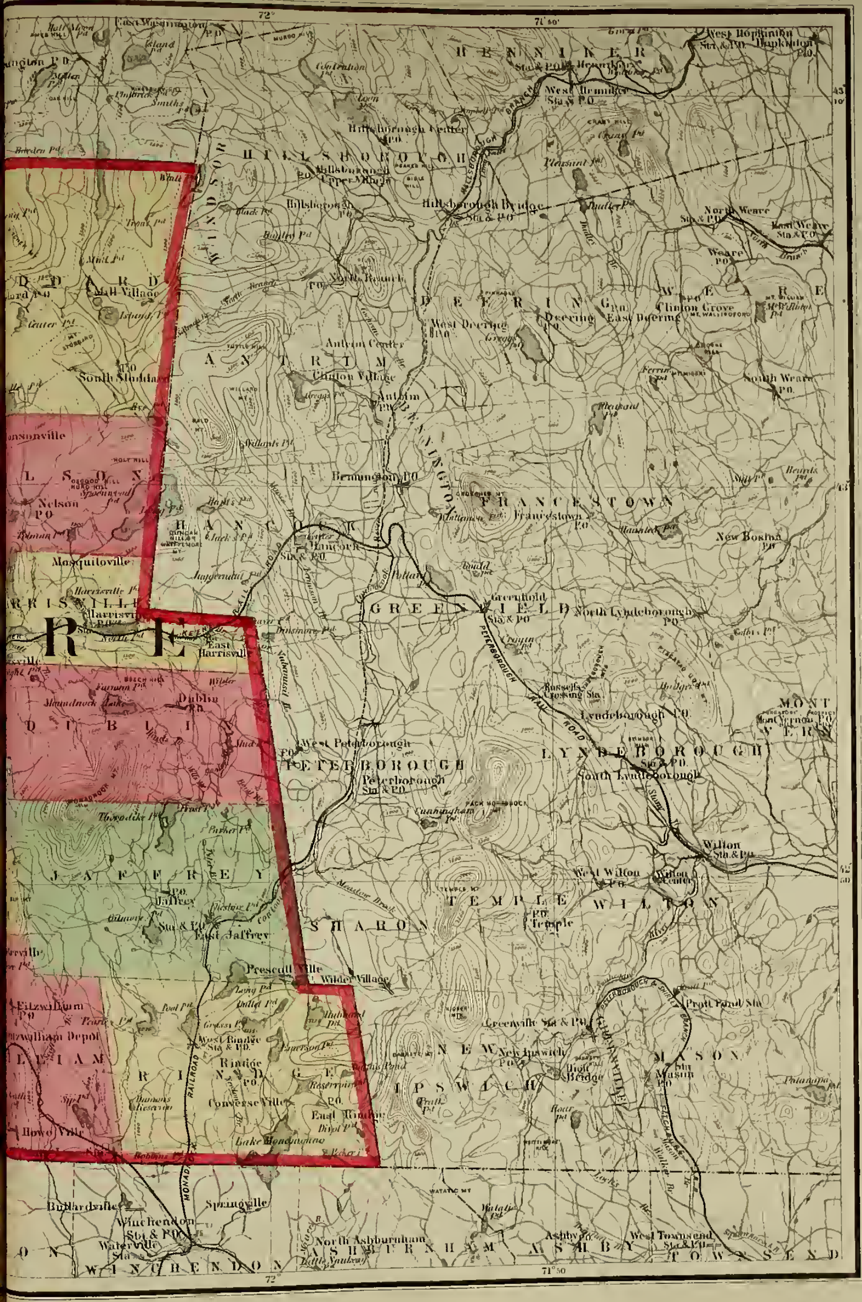
M E R R I M
D A N B U R Y
Danbury Sta & P.O.
South Danbury Sta & P.O.
H I L L
Hill Sta & P.O.
Bristol
W I L M O T
Wilmot P.O.
Wilmot Flat P.O.
A N D O V E R
East Andover Sta & P.O.
West Andover
Andover Sta & P.O.
Potter Place
Cilleyville
Highland Lake
F R A N K L I N
Franklin P.O.
Franklin Sta
N E W   L O N D O N
New London P.O.
Scytheville
Pleasant Pd
Clark Pd
Messer Pd
Little Sunapee Lake
S P R I N G F I E L D
Springfield P.O.
West Springfield
East Springfield P.O.
Grantham P.O.
Croydon P.O.
Georges Mills
Sunapee
Sunapee Sta
S U N A P E E   L A K E
South Sunapee P.O.
S A L I S B U R Y
West Salisbury P.O.
Salisbury Center
Salisbury P.O.
North Boscawen
S U T T O N
North Sutton P.O.
Sutton P.O.
South Sutton P.O.
Kezar Pd
N E W B U R Y
Newbury Sta & P.O.
South Newbury
Chandlers Mills P.O.
B O S C A W E N
Boscawen Sta & P.O.
W E B S T E R
Webster P.O.
Corser Hill
Fisherville Sta & P.O.
Mast Yard Sta & P.O.
W A R N E R
Warner Sta & P.O.
Waterloo Sta
Roby's Corner Sta & P.O.
Melvin's Mills Sta
Warner Lower Village
Davisville
Dimonds Corner
Contoocook
B R A D F O R D
Bradford Sta & P.O.
Bradford Center
Todd Pd
H O P K I N T O N
Contoocook Sta & P.O.
Tyler's Sta
Clough ville
West Hopkinton Sta & P.O.
Hopkinton P.O.
H E N N I K E R
Henniker Sta & P.O.
West Henniker Sta & P.O.
Pleasant Pd
G O S H E N
Mill Village P.O.
Goshen P.O.
W A S H I N G T O N
East Washington P.O.
Washington P.O.
H I L L S B O R O U G H
Hillsborough Center P.O.
Hillsborough Upper Village P.O.
Hillsborough P.O.
Hillsborough Bridge Sta & P.O.
D E E R I N G
West Deering P.O.
Deering P.O.
East Deering P.O.
North Branch
W E A R E
North Weare Sta & P.O.
East Weare Sta & P.O.
Weare P.O.
Clinton Grove
South Weare P.O.
D U N B A R T O N
North Dunbarton P.O.
Raymonds Sta
A N T R I M
Antrim Center
Clinton Village
Antrim
Stoddard P.O.
Mill Village
South Stoddard P.O.
C O N C O R D   R A I L R O A D
C L A R E M O N T   R A I L R O A D
72°10'
72°
71°50'
71°40'

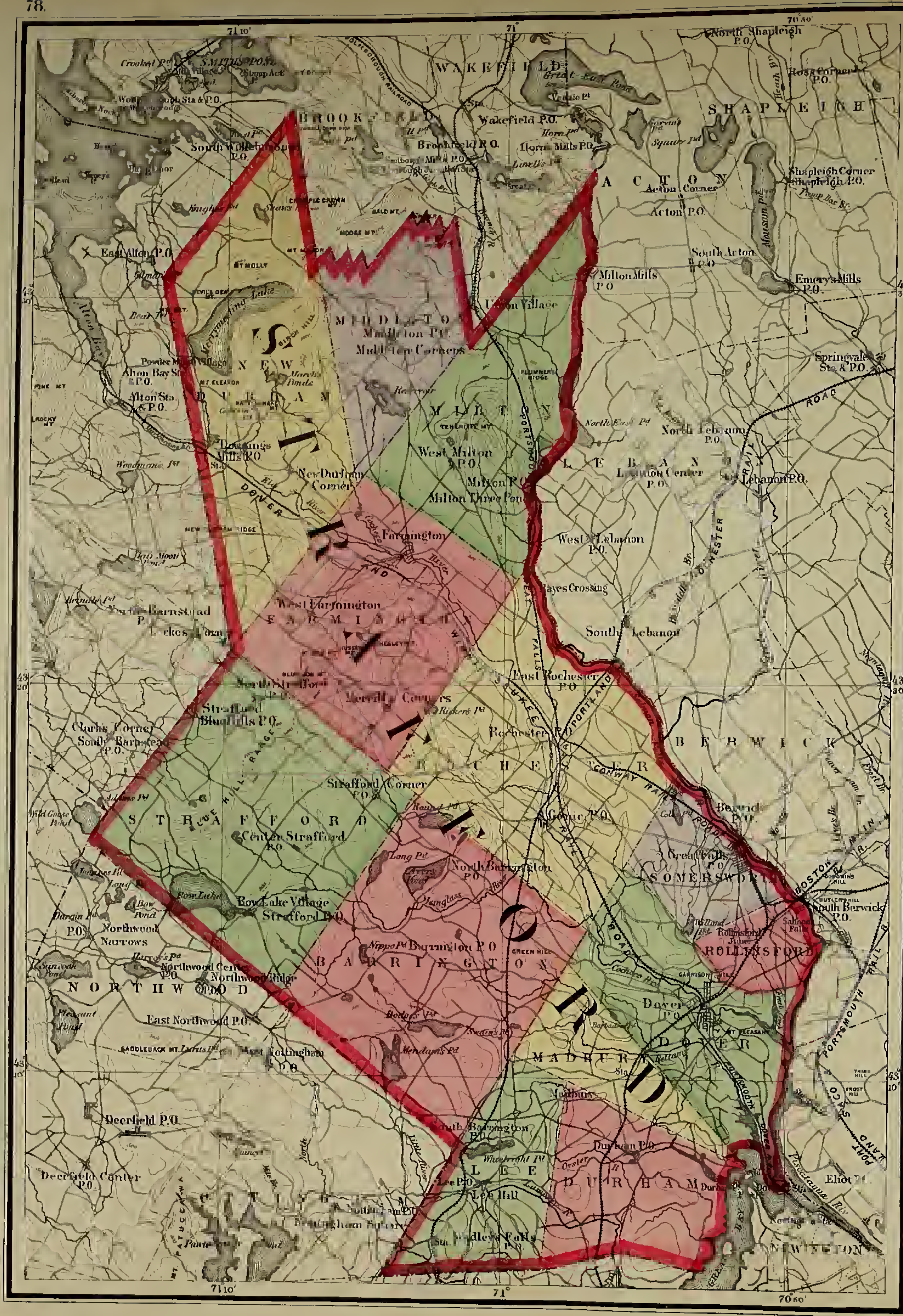

Plan of
FRANKLIN
MERRIMACK CO. N. H.
FRANKLIN P.O.
FRANKLIN FALLS P.O.
PEMIGEWASSET
WINNIPISEOGEE
RIVER
Tannery
Webster House
Cong. Church
Chapel
Christian Church
Depot
CENTRAL ST.
PLEASANT ST.
OAK ST.
SCHOOL ST.
Savings Bank
Franklin Mills
Winnipiseogee Paper Mills
Machine Shop
Pulp Mill
HILLSBOROUGH BRIDGE
HILLSBOROUGH CO. N.H.
High School
Meth. Ch.
Clothes Pin Factory
R.R. Station
Agricultural Grounds
MYRTLE ST.
JACKSON ST.
DEPOT ST.
MAIN ST.
RIVER ST.
MILL ST.
Valley Hotel
1st Nat. Bank
Masonic Temple
Cong. Ch.
Lumber Mill
Woolen Mill
Flouring Mill
Land and Water Power Co.
CONTOOCOOK
B A R N S T E A D
Barnstead Center
Barnstead P.O.
Lockes Corner
North Strafford P.O.
Merrill's Corners
Strafford Bluehills P.O.
Clarks Corner
South Barnstead P.O.
Strafford Corner P.O.
S T R A F F O R D
Center Strafford P.O.
Bow Lake
Bow Lake Village
Strafford P.O.
BLUE HILLS RANGE
Northwood Narrows
Northwood Center P.O.
Northwood Ridge
N O R T H W O O D
Suncook Pond
P I T T S F I E L D
Pittsfield Sta. & P.O.
Websters Mills Sta.
North Chichester Sta. P.O.
C H I C H E S T E R
Chichester P.O.
Epsom
Epsom P.O.
E P S O M
Short Falls Sta. & P.O.
New Rye
Suncook River
P E M B R O K E
East Pembroke P.O.
Pembroke P.O.
Allenstown Sta. & P.O.
Suncook Sta. & P.O.
A L L E N S T O W N
Shingle Pd.
Candia Vill. P.O.
Hooksett
Sta. & P.O.
H O O K S E T T
Martins Ferry
CAMPBELL HILL
L O U D O N
Loudon P.O.
Loudon Center P.O.
Loudon Ridge P.O.
Kelleys Corner
A C K
North Concord Sta.
Sewells Falls
Concord Sta. & P.O.
East Concord Sta. & P.O.
Concord
Bow Mills
Garvins Falls
Robinsons Sta.
Bow P.O.
B O W
CONCORD
B E L M O N T
Belmont P.O.
Farrarville
Laconia P.O. & Sta.
Gilmanton
Hills Corner
Shaker Village P.O.
71° 30'
71° 20'
71° 10'

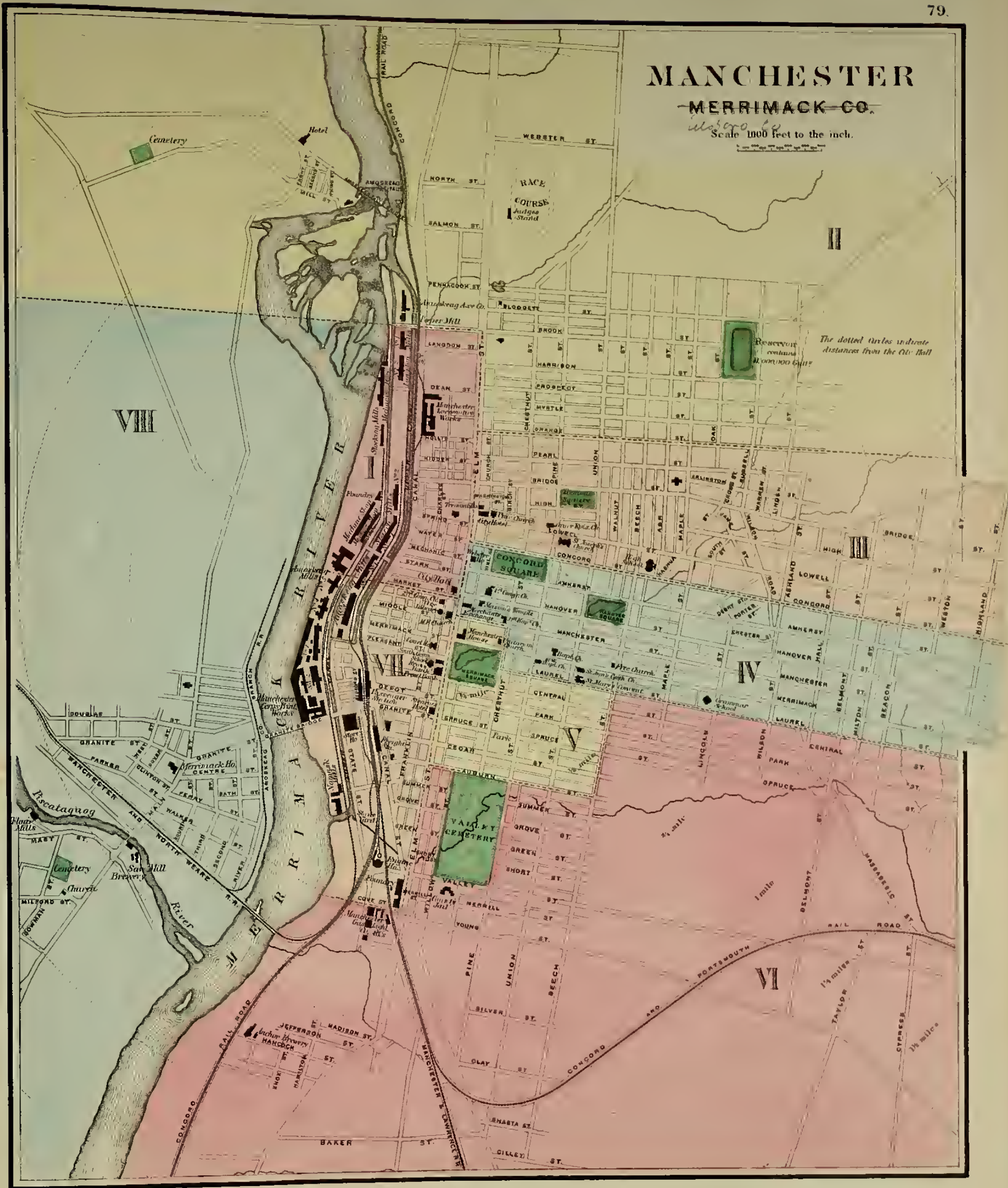

72°20'
72°10'
72°
ORANGE
West Canaan Sta & P.O.
Lebanon Sta & P.O.
LEBANON
Shakers
East Enfield
ENFIELD
Enfield Center P.O.
Grafton Center
Grafton Sta & P.O.
North Hartland Sta & P.O.
Hartland Four Corners P.O.
East Plainfield P.O.
Meriden P.O.
PLAINFIELD
GRANTHAM
Grantham P.O.
Springfield P.O.
West Springfield
SPRINGFIELD
East Springfield P.O.
WINDSOR
CORNISH
Four Corners
CROYDON
Croydon P.O.
Croydon Flat
Ascutneyville P.O.
Weathersfield Center P.O.
West Claremont
CLAREMONT
Claremont P.O.
NEWPORT
Newport Sta & P.O.
Kelleyville
Sunapee Sta.
NEW LONDON
New London P.O.
Sutton P.O.
Newbury Sta & P.O.
NEWBURY
South Newbury
Bradford Sta & P.O.
North Charlestown
UNITY
Unity P.O.
East Unity P.O.
Quaker City
Mill Village
GOSHEN
Goshen P.O.
CHARLESTOWN
Charlestown Sta & P.O.
Cambridge Hollow
Lempster P.O.
LEMPSTER
East Lempster
Dodge Hollow
ACWORTH
South Acworth
South Charlestown
LANGDON
Langdon P.O.
WASHINGTON
East Washington
Washington P.O.
Alstead P.O.
East Alstead
Alstead Center P.O.
Drewsville P.O.
MARLOW
Marlow Hill
Marlow
Hillsborough Upper Village
Hillsborough
43° 30'
43° 20'
43° 10'


BELKNAP
HOLDERNESS
MOULTONBOROUGH
Moultonborough Center
Moultonborough P.O.
Moultonville P.O.
Red Hill P.O.
Center Harbor P.O.
TUFTONBOROUGH
Tuftonborough P.O.
Melvin Village P.O.
Mackerel Corner P.O.
Holderness P.O.
Bridgewater Sta. & P.O.
ASHLAND
Ashland Sta. & P.O.
Little Squam Lake
White Oak Pd.
NEW HAMPTON
New Hampton Center
New Hampton P.O.
Pemigewasset Pd.
MEREDITH
Meredith Village
Meredith Center P.O.
Meredith Neck
Weirs Bridge P.O.
LAKE WINNIPISEOGEE
Long Id.
Bear Id.
Stone Dam Id.
Welch Id.
Thompson's Id.
Rattle Snake
Little Rattle Snake
Wolfborough Sta. & P.O.
LACONIA
Laconia P.O. & Sta.
Lake Village
GILFORD
Gilford Village P.O.
West Alton P.O.
East Alton P.O.
Belknap Mts.
Gunstock Mt.
SANBORNTON
North Sanbornton P.O.
Sanbornton P.O.
Hopkinton Hill
Great Bay
BELMONT
Farrarville
Belmont P.O.
Factory Reservoir
GILMANTON
Gilmanton
Gilmanton Iron Works P.O.
Lower Gilmanton P.O.
Shell Camp Pd.
ALTON
Alton Bay Sta. & P.O.
Alton Sta. & P.O.
BARNSTEAD
Barnstead Center
Barnstead P.O.
North Barnstead P.O.
South Barnstead P.O.
Locke's Corner
Pittsfield Sta. & P.O.
PITTSFIELD
Tilton P.O.
East Tilton P.O.
TILTON
FRANKLIN
Franklin Falls
Franklin Sta. & P.O.
Northfield Center
NORTHFIELD
Northfield Depot P.O.
Hills Corner
Loudon Ridge P.O.
LOUDON
Loudon Center P.O.
Loudon P.O.
Kelley's Corner
CANTERBURY
Canterbury P.O.
Shaker Village P.O.
North Boscawen
BOSCAWEN
Boscawen Sta. & P.O.
Salisbury P.O.
North Concord Sta.
Fisherville Sta. & P.O.
Mast Yard Sta. & P.O.
West Concord Sta. & P.O.
East Concord Sta. C. & P.O. R.R.
CONCORD
CHICHESTER
Chichester P.O.
North Chichester P.O.
Webster's Mills
Northwood
70°40'
70°30'
70°20'
70°10'
43°40'
43°30'
43°20'

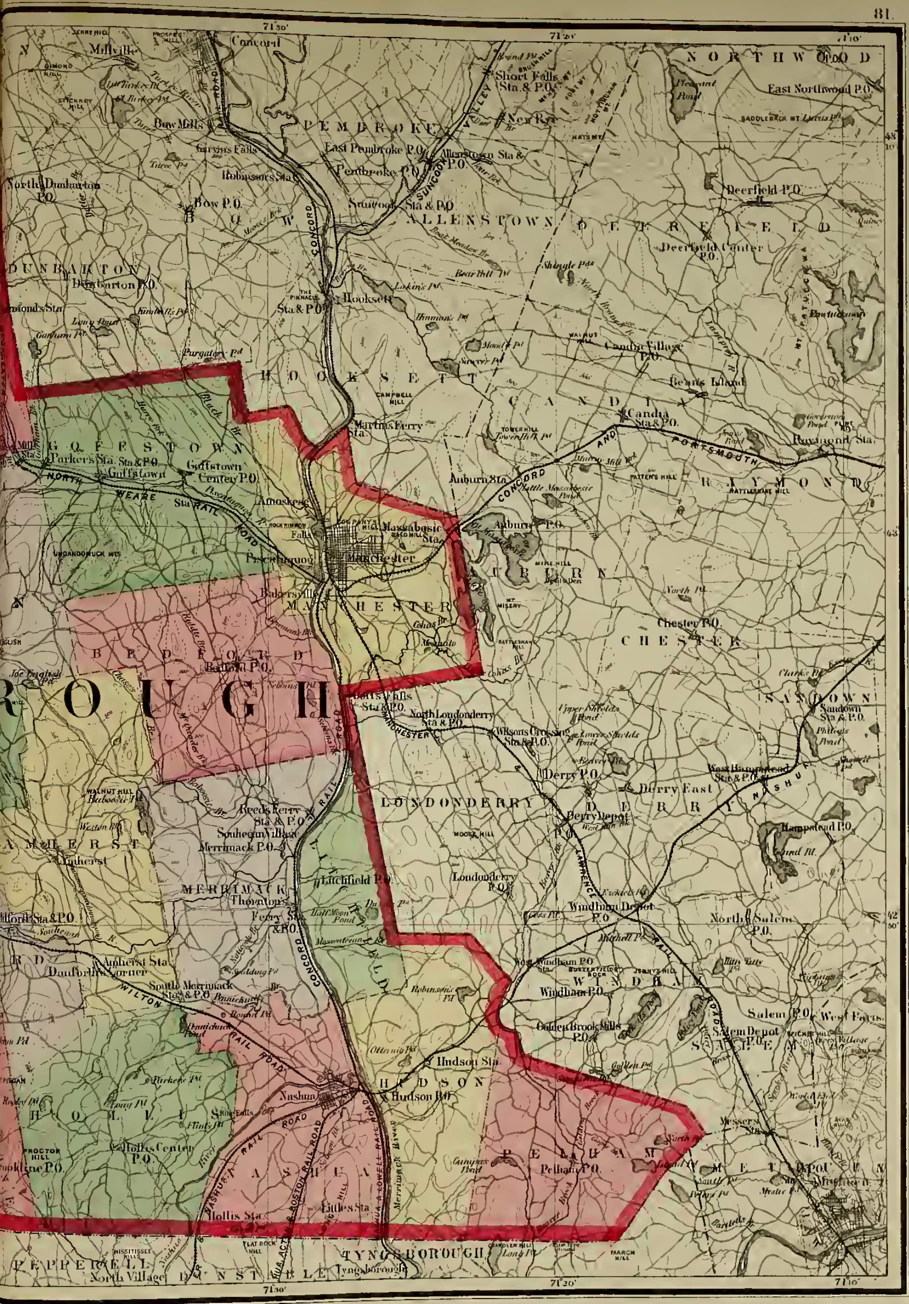

72° 30'
72° 20'
GRAFTON
Grafton P.O.
Sta. & P.O. Rockingham
ROCKINGHAM
South Charlestown Sta. & P.O.
LANGDON
Cambridgeport P.O.
Saxtons River P.O.
Bellows Falls
Cold River Sta.
Drewsville
Alstead Center P.O.
East Alstead P.O.
MARLOW
Marlow P.O.
ATHENS
Athens P.O.
ALSTEAD
Sta. & P.O. Westminster
WESTMINSTER
Westminster West P.O.
Walpole Sta. & P.O.
WALPOLE
Surry P.O.
GILSUM
Gilsum P.O.
Brookline P.O.
BROOKLINE
SURRY
SULLIVAN
P.O. Sullivan
Fayetteville P.O.
Westmoreland Depot
East Westmoreland Sta. & P.O.
PUTNEY
East Putney Sta.
Putney P.O.
Cornton P.O.
East Sullivan
VERMONT
Putney Sta.
P.O. Westmoreland
WESTMORELAND
Dummerston P.O.
KEENE
ROXBURY
DUMMERSTON
CHESH
West Dummerston P.O.
Dummerston Sta.
South Keene Sta.
West Chesterfield
Chesterfield Factory P.O.
Factory Village
Spofford Lake
CHESTERFIELD
P.O. Chesterfield
Marlboro
BRATTLEBORO
West Brattleboro P.O.
Brattleboro Sta. & P.O.
West Swanzey P.O.
Swanzey Sta.
Swanzey
SWANZEY
East Swanzey P.O.
MARLB
Marlboro P.O.
Guilford P.O.
Guilford Center P.O.
GUILFORD
HINSDALE
WINCHESTER
TROY
North Richmond P.O.
Hinsdale P.O.
Vernon Sta. & P.O.
Ashuelot Sta. & P.O.
Winchester Sta. & P.O.
VERNON
RICHMOND
P.O. Richmond
FITZ
Sta. & P.O. South Vernon Junction
West Northfield
North Bernardston
Leyden P.O.
LEYDEN
BERNARDSTON
Northfield Sta. & P.O.
Warwick P.O.
Bernardston Sta. & P.O.
NORTHFIELD
WARWICK
ROYALS
Royalston P.O.
72° 30
72° 20
43° 10
43°
42° 50

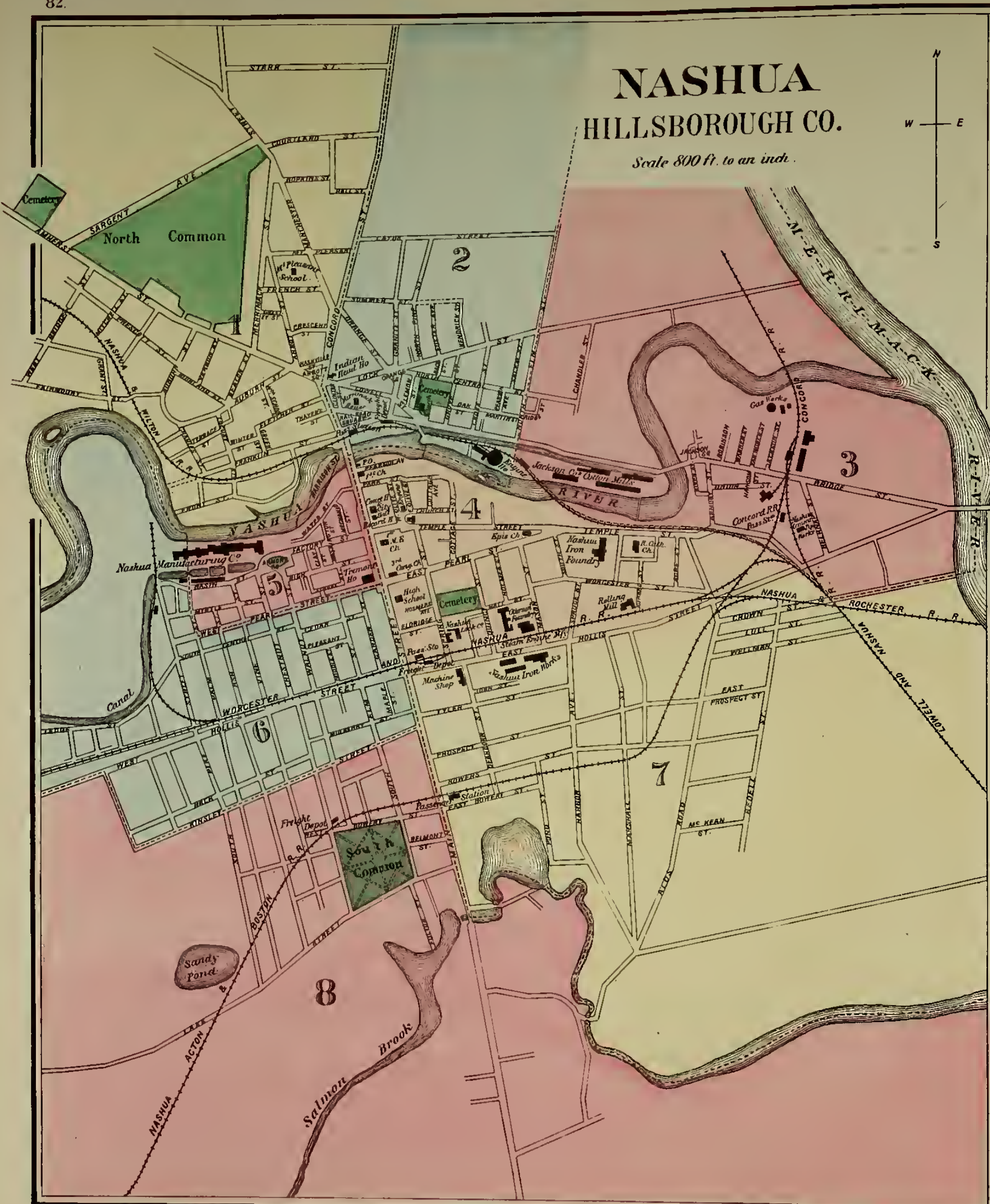

HILLSBOROUGH
HENNIKER
WEARE
DEERING
ANTRIM
FRANCESTOWN
HANCOCK
GREENFIELD
LYNDEBOROUGH
PETERBOROUGH
TEMPLE
WILTON
SHARON
JAFFREY
DUBLIN
RINDGE
NEW IPSWICH
MASON
ASHBURNHAM
ASHBY
TOWNSEND
WINCHENDON
Hillsborough Bridge Sta & P.O.
Hillsborough Center P.O.
West Deering P.O.
East Deering
Clinton Grove
Antrim Center
Clinton Village
Bennington P.O.
Francestown P.O.
New Boston P.O.
Greenfield Sta & P.O.
North Lyndeborough P.O.
Lyndeborough P.O.
South Lyndeborough
West Peterborough
Peterborough Sta & P.O.
Wilton Sta & P.O.
West Wilton
Temple
East Jaffrey
Prescott Ville
Wilder Village
Greenville Sta & P.O.
West Rindge Sta & P.O.
Rindge P.O.
Converse Ville
East Rindge P.O.
Winchendon Sta & P.O.
Waterville
Springville
Ashby P.O.
West Townsend Sta & P.O.
North Ashburnham
Nelson P.O.
Harrisville
East Harrisville
Dublin P.O.
Jaffrey P.O.
Fitzwilliam P.O.
Fitzwilliam Depot
Howe Ville
Mosquitoville
Hancock Sta & P.O.
Mason P.O.
72°
71°50'

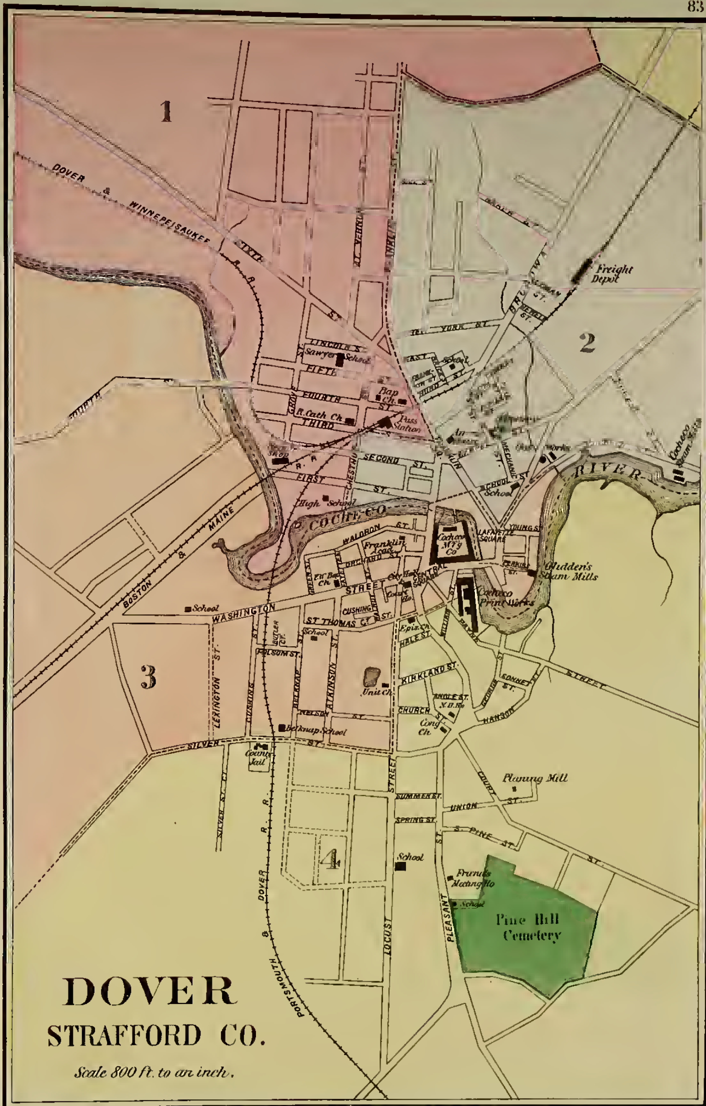

STRAFFORD
NEW DURHAM
MIDDLETON
MILTON
FARMINGTON
ROCHESTER
STRAFFORD
BARRINGTON
SOMERSWORTH
ROLLINSFORD
DOVER
MADBURY
LEE
DURHAM
NORTHWOOD
WAKEFIELD
BROOKFIELD
ACTON
SHAPLEIGH
LEBANON
BERWICK
NEWINGTON
Wakefield P.O.
Brookfield P.O.
Horn Mills P.O.
Acton Corner
Acton P.O.
South Acton P.O.
Milton Mills P.O.
Emerys Mills P.O.
Shapleigh Corner
Shapleigh P.O.
North Shapleigh P.O.
Ross Corner P.O.
Springvale Sta. & P.O.
Union Village
Middleton P.O.
Middleton Corners
East Alton P.O.
Alton Bay Sta.
Alton Sta. & P.O.
Powder Mill Village
Downings Mills P.O.
New Durham Corner
West Milton P.O.
Milton P.O.
Milton Three Pond
North Lebanon
Lebanon Center P.O.
Lebanon P.O.
West Lebanon P.O.
Hayes Crossing
South Lebanon
Farmington
West Farmington
East Rochester P.O.
Rochester P.O.
Gonic P.O.
North Strafford
Strafford Blue Hills P.O.
Clarks Corner
South Barnstead P.O.
Strafford Corner P.O.
Center Strafford P.O.
Bow Lake Village
Strafford P.O.
North Barrington P.O.
Barrington P.O.
Northwood Narrows
Northwood Centre P.O.
Northwood Ridge
East Northwood P.O.
Deerfield P.O.
Deerfield Center P.O.
Great Falls P.O.
Berwick P.O.
South Berwick P.O.
Dover P.O.
Madbury
South Barrington P.O.
Durham P.O.
Lee P.O.
Lee Hill
Eliot P.O.
Bow Lake
Long Pd.
Round Pd.
Rickers Pd.
Mendums Pd.
Wheelwright Pd.
Merrymeeting Lake
Cochecho River
Piscataqua Riv.
Great Bay
CONWAY RAIL ROAD
PORTLAND
BOSTON
DOVER
WOLFEBOROUGH RAILROAD
71° 10'
71°
70° 50'
43° 30'
43° 20'
43° 10'

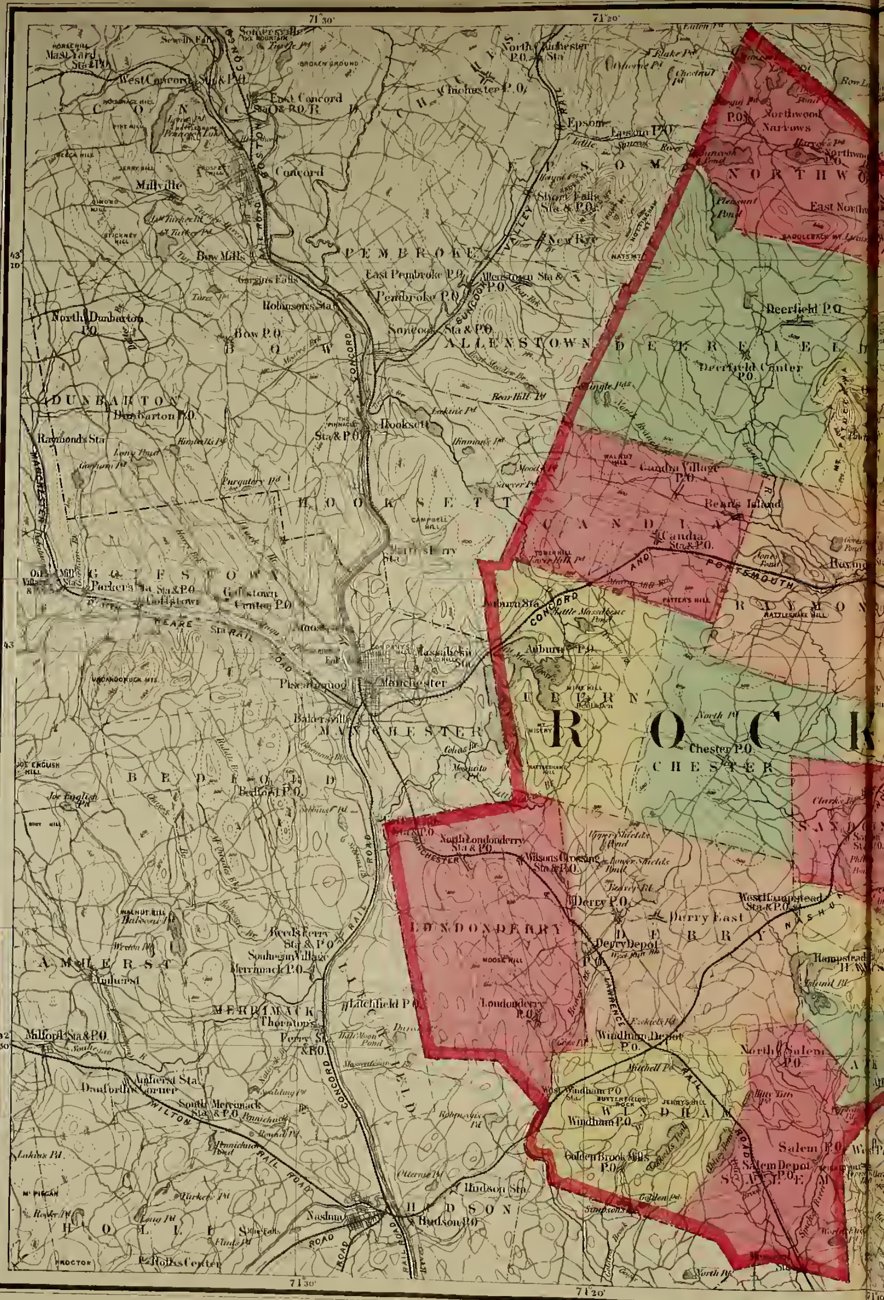

MANCHESTER
MERRIMACK CO.
Scale 1000 feet to the inch.
The dotted circles indicate distances from the City Hall
MERRIMACK RIVER
CONCORD SQUARE
MERRIMACK SQUARE
HANOVER SQUARE
VALLEY CEMETERY
RACE COURSE
Reservoir
Piscataquog River
CONCORD AND PORTSMOUTH RAIL ROAD
MANCHESTER & LAWRENCE
CONCORD RAIL ROAD
I
II
III
IV
V
VI
VII
VIII

72°10'
72°
71°50'
WASHINGTON
East Washington
Washington P.O.
HENNIKER
West Henniker Sta.& P.O.
HOPKINTON
New Hopkinton Sta.& P.O.
HILLSBOROUGH
Hillsborough Centre P.O.
Hillsborough Upper Village
Hillsborough P.O.
Hillsborough Bridge Sta.& P.O.
WINDSOR
North Weare Sta.& P.O.
East Weare Sta.& P.O.
Weare P.O.
WEARE
Clinton Grove
South Weare P.O.
Stoddard P.O.
Mill Village
South Stoddard
ANTRIM
Antrim Center
Clinton Village
Antrim P.O.
North Branch
DEERING
West Deering P.O.
Deering P.O.
East Deering
Munsonville P.O.
NELSON
Nelson P.O.
Bennington P.O.
BENNINGTON
FRANCESTOWN
Francestown P.O.
New Boston P.O.
NEW BOSTON
HANCOCK
Hancock Sta.& P.O.
Mosquitoville
HARRISVILLE
Harrisville Sta.& P.O.
East Harrisville
GREENFIELD
Greenfield Sta.& P.O.
North Lyndeborough P.O.
HILLSBO
Pottersville
Dublin P.O.
DUBLIN
Lyndeborough P.O.
LYNDEBOROUGH
South Lyndeborough
MONT VERNON
West Peterborough
PETERBOROUGH
Peterborough Sta.& P.O.
JAFFREY
Jaffrey
Sta.& P.O.
East Jaffrey
TEMPLE
Temple
SHARON
West Wilton
Wilton Center
Wilton Sta.& P.O.
WILTON
Bowkerville
Prescott Ville
Fitzwilliam P.O.
Fitzwilliam Depot
West Rindge Sta.& P.O.
Rindge P.O.
RINDGE
Greenville Sta.& P.O.
NEW IPSWICH
New Ipswich
Pratt Pond Sta.
MASON
Mason P.O.
Converse Ville
East Rindge
Howe Ville
State Line Sta.
Lake Monomonac
Bullardville
Springville
Winchendon Sta.& P.O.
Watatic Pd.

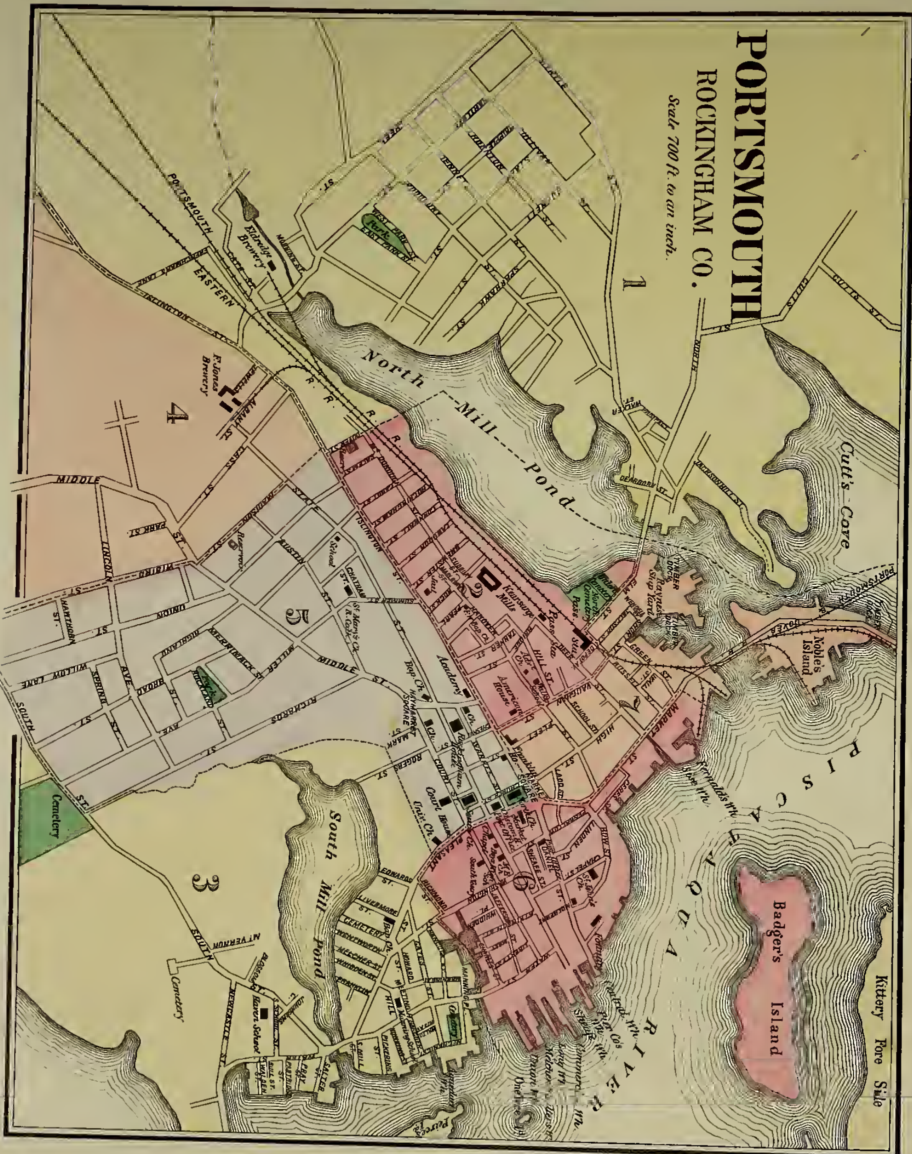

71°30'
71°20'
71°10'
Concord
Millville
Bow Mills
Garvins Falls
Robinsons Sta.
North Dunbarton P.O.
Bow P.O.
B O W
D U N B A R T O N
Dunbarton P.O.
P E M B R O K E
East Pembroke P.O.
Pembroke P.O.
Allenstown Sta & P.O.
Suncook Sta & P.O.
A L L E N S T O W N
Short Falls Sta. & P.O.
New Rye
N O R T H W O O D
East Northwood P.O.
Deerfield P.O.
D E E R F I E L D
Deerfield Center P.O.
Hooksett
Sta. & P.O.
H O O K S E T T
Candia Village P.O.
Beans Island
C A N D I A
Candia Sta & P.O.
Raymond Sta.
R A Y M O N D
Martins Ferry Sta.
G O F F S T O W N
Parkers Sta.
Sta & P.O.
Goffstown
Goffstown Center P.O.
NORTH WEARE RAIL ROAD
Amoskeag
Falls
Massabesic
Sta.
Manchester
Piscataquog
Bakersville
M A N C H E S T E R
Auburn Sta.
Auburn P.O.
A U B U R N
CONCORD AND PORTSMOUTH
Chester P.O.
C H E S T E R
B E D F O R D
Bedford P.O.
R O U G H
Goffs Falls Sta & P.O.
North Londonderry Sta & P.O.
Wilsons Crossing Sta & P.O.
S A N D O W N
Sandown Sta & P.O.
Derry P.O.
Derry East
D E R R Y
Derry Depot
West Hampstead Sta & P.O.
Hampstead P.O.
L O N D O N D E R R Y
Londonderry P.O.
Reeds Ferry Sta & P.O.
Souhegan Village
Merrimack P.O.
A M H E R S T
Amherst
M E R R I M A C K
Thorntons Ferry Sta & P.O.
Litchfield P.O.
Windham Depot P.O.
North Salem P.O.
Milford Sta & P.O.
Amherst Sta.
Danforths Corner
South Merrimack Sta & P.O.
WILTON RAIL ROAD
West Windham P.O.
W I N D H A M
Windham P.O.
Salem P.O.
Salem Depot P.O.
Golden Brook Mills P.O.
Hudson Sta.
H U D S O N
Hudson P.O.
Nashua
H O L L I S
Hollis Center P.O.
P E L H A M
Pelham P.O.
N A S H U A
Hollis Sta.
Little's Sta.
CONCORD
TYNGSBOROUGH
Tyngsborough
P E P P E R E L L
North Village
D U N S T A B L E


NASHUA
HILLSBOROUGH CO.
Scale 800 ft. to an inch.
N
W
E
S
North Common
Cemetery
South Common
Sandy Pond
Salmon Brook
NASHUA RIVER
MERRIMACK RIVER
Nashua Manufacturing Co.
Jackson Co. Cotton Mills
Nashua Iron Foundry
Nashua Iron Works
Rolling Mill
Gas Works
Concord R.R. Pass. Sta.
Machine Shop
High School
Canal
1
2
3
4
5
6
7
8
MAIN
CONCORD
WORCESTER STREET
HOLLIS
PEARL
TEMPLE STREET
EAST
WEST
STARR ST.
COURTLAND ST.
CANAL
AMHERST ST.
SARGENT AVE.
BRIDGE ST.
CROWN ST.
EAST PROSPECT ST.
LOWELL AND NASHUA R.R.
NASHUA ACTON & BOSTON R.R.


1
2
3
4
DOVER & WINNEPEISAUKEE R. R.
Freight Depot
YORK ST.
LINCOLN S.
Sawyer School
FIFTH
FOURTH ST.
Bap. Ch.
R. Cath. Ch.
THIRD
Pass. Station
SECOND ST.
FIRST ST.
High School
COCHECO RIVER
WALDRON ST.
Franklin Acad.
Cocheco Mf'g Co.
LAFAYETTE SQUARE
YOUNG ST.
Gludden's Steam Mills
Cocheco Print Works
BOSTON & MAINE
School
WASHINGTON
STREET
CENTRAL
ST. THOMAS CT.
CUSHING ST.
Epis. Ch.
HALE ST.
FOLSOM ST.
KIRKLAND ST.
Unit. Ch.
CHURCH
Cong. Ch.
HANSON
LEXINGTON ST.
SILVER ST.
Belknap School
County Jail
Planing Mill
COURT ST.
UNION
SUMMER ST.
SPRING ST.
S. PINE ST.
School
Friends Meeting Ho.
Pine Hill Cemetery
PLEASANT
LOCUST
DOVER & PORTSMOUTH R. R.
DOVER
STRAFFORD CO.
Scale 800 ft. to an inch.


71°30'
71°20'
West Concord Sta & P.O.
East Concord Sta & P.O.
Concord
Millville
Bow Mills
Epsom
Epsom P.O.
Short Falls Sta & P.O.
New Rye
Northwood Narrows
NORTHWOOD
PEMBROKE
East Pembroke P.O.
Pembroke P.O.
Allenstown Sta & P.O.
Suncook Sta & P.O.
ALLENSTOWN
Robinsons Sta
Bow P.O.
BOW
North Dunbarton P.O.
DUNBARTON
Dunbarton P.O.
Raymonds Sta
Deerfield P.O.
Deerfield Center P.O.
DEERFIELD
Hooksett
HOOKSETT
Candia Village P.O.
CANDIA
Candia Sta & P.O.
Beans Island
GOFFSTOWN
Parkers Sta
Goffstown Sta & P.O.
Goffstown Center P.O.
Auburn Sta
Auburn P.O.
AUBURN
CONCORD AND PORTSMOUTH
Massabesic Sta
Manchester
Piscataquog
Bakersville
MANCHESTER
ROCK
Chester P.O.
CHESTER
BEDFORD
Bedford P.O.
Joe English Pd
North Londonderry Sta & P.O.
Wilsons Crossing Sta & P.O.
Derry P.O.
Derry East
Derry Depot
DERRY
LONDONDERRY
Londonderry P.O.
West Hampstead Sta & P.O.
Hampstead
Reeds Ferry Sta & P.O.
Souhegan Village
Merrimack P.O.
AMHERST
Amherst
MERRIMACK
Thorntons Ferry Sta & P.O.
Litchfield P.O.
Milford Sta & P.O.
Amherst Sta
Danforths Corner
South Merrimack Sta & P.O.
WILTON RAIL ROAD
Windham Depot P.O.
North Salem P.O.
West Windham P.O. Sta
Windham P.O.
WINDHAM
Golden Brook Mills P.O.
Salem P.O.
Salem Depot P.O.
SALEM
Hudson Sta
Nashua
HUDSON
Hudson P.O.
HOLLIS
Hollis Center
CONCORD RAIL ROAD
71°30'
71°20'

71°
70°30'
70°40'
SOMERSWORTH
SOUTH BERWICK
South Berwick P.O.
Great Works
ROLLINSFORD
Conway Junc.
B A R R I N G T O N
Barrington P.O.
North Barrington P.O.
Lake Village
Strafford P.O.
Dover
D O V E R
M A D B U R Y
Madbury
South Barrington P.O.
L E E
Lee P.O.
Lee Hill
D U R H A M
Durham P.O.
Wadley's Falls
Nottingham Square
Eliot Depot
E L I O T
Eliot P.O.
Y O R K
York Pd
K I T T E R Y
Newington Sta.
NEWINGTON
N E W M A R K E T
Newmarket
SOUTH NEWMARKET
Bracketts Sta.
PORTSMOUTH
HARBOR
Greenland Sta.
Greenland P.O.
Greenland Depot
E P P I N G
Epping P.O.
West Epping Sta.
Piscassic
S T R A T H A M
R Y E
Rye Beach
Wallis Sands
Concord Pt
Ragged Neck Pt
Cable Station
Straw's Pt
Rye Ledge
Fox Head Pt
Little Boar's Head
Great Boar's Head
ISLES OF SHOALS
Hog I.
Marshall's Corner
E X E T E R
Exeter
B R E N T W O O D
Brentwood P.O.
NORTH HAMPTON
North Hampton P.O.
I N G H A M
H A M P T O N
Hampton Sta. & P.O.
HAMPTON FALLS
Hampton Falls P.O.
Danville P.O.
DANVILLE
Kingston P.O.
East Kingston
KINGSTON
K I N G S T O N
East Kensington P.O.
KENSINGTON
SEABROOK
SOUTH HAMPTON
East Hampstead P.O.
South Kingston
Newton P.O.
N E W T O N
Newton Depot P.O.
Salisbury
Amesbury Sta. & P.O.
AMESBURY
S A L I S B U R Y
Salisbury Sta.
East Salisbury
MERRIMAC
Merrimac Sta. & P.O.
Merrimacport P.O.
PLAISTOW
Atkinson P.O.
MERRIMACK RIVER
Newburyport Lights
East Haverhill P.O.
WEST NEWBURY
N E W B U R Y P O R T
Newbury Old Town P.O.
N E W B U R Y
Haverhill
Groveland P.O.
Byfield P.O.
South Byfield P.O.
B R A D F O R D
G R O V E L A N D
South Groveland
Plum Island
A T L A N T I C   O C E A N
Scale: 2½ Miles to the Inch.


PORTSMOUTH
ROCKINGHAM CO.
Scale 700 ft. to an inch.
1
2
3
4
5
6
North Mill Pond
South Mill Pond
Cutt's Cove
PISCATAQUA RIVER
Badger's Island
Kittery Fore Side
Noble's Island
Cemetery
Eldredge Brewery
F. Jones Brewery
PORTSMOUTH
EASTERN R. R.
MIDDLE
LINCOLN
UNION
ISLINGTON
MARKET
SOUTH
Academy
Court House
Rockingham House
Kearsarge Mills
Franklin Square

APPENDIX.

CONNECTING LINES TO BOSTON AND NEW YORK.

NEW-YORK AND NEW-ENGLAND RAILROAD.

This is one of the great popular lines between Boston and New York, and forms also part of a favorite line between the city of New York and New Hampshire, especially accommodating the summer pleasure travel to and from the Lake and Mountain Region of the State.

STEAMBOAT ROUTE BETWEEN BOSTON AND NEW YORK. This route has been considerably shortened from the old one via Worcester and Norwich, which even before this shortening, long maintained an eminent degree of popularity with the travelling public. By that route trains passed over what was then the Boston and Worcester Railroad in a westerly direction to Worcester and from thence southerly over the Norwich and Worcester Road to Allyn's Point, the southern terminus of the road, a few miles below Norwich, on the Thames River. Here passengers were transferred to the steamboat for New York.

The shortening has been effected by the construction of the Putnam Division of the New York and New England Railroad, extending from Boston to Putnam, Conn., where it connects with the Norwich and Worcester Road, now leased by the New York and New England and forming a part of its system of roads. The general direction of this Putnam Division is very nearly in a straight or air line drawn between Boston and New York. Another improvement has been made in running the trains to New London at the mouth of the Thames instead of to Allyn's Point as formerly.

The passenger from Boston to New York, now takes the cars at the very centrally located station of the New York and New England Railroad at 6, P. M. He arrives at the steamboat wharf in New London about 10 P. M, and passes directly from the cars on board the commodious boats of the line, retires to his comfortable state room to find himself in New York at an early hour in the morning. The waters of Long Island Sound through which the boat passes are entirely sheltered from the ocean waves, so that there is no liability to sea sickness. The boat arrives in ample season to connect with early morning trains west or south, and the steamboat wharf is in convenient proximity to the great up town hotels, to the business parts of the city and to the Jersey City and Hoboken ferries connecting with western and southern trains and foreign steamers.

Returning to Boston the traveller takes passage on the boat, leaving the wharf a little before sunset, is provided, if he wishes, with a good dinner or supper *a la carte* and finds himself shortly after midnight at New London, and changing there to the cars, arrives at a very early hour in Boston, in time to connect with all early morning trains.

Or if he prefers he can sleep on the boat till about 5 A. M., and then proceed, arriving in Boston in ample season for business.

ROUTE TO NEW YORK VIA WORCESTER. New Hampshire people not having occasion or not desiring to pass through Boston will find the route via *Worcester and Norwich* a very pleasant and direct one, with the advantage of avoiding the delay and expense of a transfer from one station to another in Boston. Through trains are accompanied by drawing room cars and the route is an extremely popular one especially for tourists and pleasure travellers from New York and the regions beyond, going to, and returning from, the Mountain and Lake Regions of New Hampshire and Canada.

ALL RAIL ROUTES. BOSTON AND NEW YORK. The original plan of this road was to make it a part of an all rail route lying in its general direction very nearly in the straight line between Boston and New York, whence it has been called the "Air Line Route" and at some not very distant day this project will be fully carried out as the different parts of the line, after having encountered many and formidable difficulties, have at last been completed, and trains are now run from Boston through Putnam, Willimantic and New Haven to New York. By reference to a good map it will be seen that these points are almost exactly in a straight line. At present trains run by the way of New London and New Haven, and via Willimantic, Hartford and New Haven, landing passengers in the Grand Central Station in New York.

NEW ROUTE TO PHILADELPHIA, BALTIMORE AND WASHINGTON. This very convenient route has only very recently been instituted and enables passengers to go to either of the cities mentioned without a transfer from one station to another in New York and even without change of cars. The route is from Boston via Putnam, Willimantic and New Haven to the Harlem River. Here the cars run on to the immense transfer steamer Maryland, formerly used in the same way on the Philadelphia and Baltimore road before the construction of the bridge at Havre de Grace; eight passenger cars are taken on the boat at once. The cars are taken to the Pennsylvania Road at Jersey city, and from there take the usual route via Philadelphia and Baltimore to Washington, connecting with all points south and southwest.

Drawing room cars accompany the day trains and sleeping cars the night trains through to Washington from Boston. It will be seen that passengers by this line avoid the annoyances and fatigue of a transfer by stages through New York City, or the expense of remaining over to make connections.

WM. T. HART, *Pres't.* Boston, Mass.
CHARLES P. CLARKE, *Gen'l Manager*, Boston, Mass.

BOSTON AND PROVIDENCE RAILROAD

The routes via the Boston and Providence Railroad posses many important advantages. This road has a most favorable allignment, being built through a nearly level country and made up principally of long, straight lines, while its curves are very easy and the gradients low. Trains are thus enabled to run at high rates of speed with the least possible danger of accident. Indeed accidents have been extremely rare in occurrence during the entire history of the road.

The rigorous punctuality with which the trains are run is another safeguard against accident as well as a very great convenience to travellers. Two tracks extend over the entire length of the line, and over that portion near Boston upon which frequent suburban trains are run, there are *three* complete tracks.

All the recent improvements in railway appliances which are conducive to the safety and convenience of travellers have been adopted upon this line, and its management evinces a most judicious regard for the comfort and welfare of its patrons.

The magnificent new station house near the Common and Public Garden in Boston has been pronounced by competent judges to be the model passenger station in the country, if not in the world, in regard to architectural beauty of design, and the multitudinous features for supplying the wants and gratifying the tastes of travellers,

Conveniently arranged around the spacious and beautifully furnished entrance hall are very large and elegant waiting rooms, luxuriously furnished, also an exceedingly handsome and well kept café and dining saloon, newspaper, book and periodical stand, reading room, smoking room, billiard room, bathing and toilet rooms etc. In fact the traveller can scarcely feel a want, while waiting for a train to arrive or start, that cannot here be gratified.

STEAMBOAT LINE. The steamboat line by the way of Stonington is an old and deservedly popular one. From Providence to Stonington the route is over the Stonington Railroad which, like the Boston and Providence,

is largely made up of long straight lines, with easy curves and low gradients.

The passenger starts from Boston at 6.00 P. M., arriving at the steamboat wharf in Stonington at 9 P. M. Here he passes on board one of the fine steamboats of the line and after a good supper retires to his comfortable state room to sleep, finding himself in New York on awakening in the morning, having sailed through the sheltered waters of Long Island Sound in entire safety and comfort.

This route admirably accommodates business men and others who wish to economize time by travelling in the night yet without losing the needed amount of sleep.

Coming from New York to Boston the traveller takes the boat in New York at an early hour in the evening, varying from 5 in the summer to 4 in the winter, changes to the cars at Stonington soon after midnight, and arrives in Boston quite early the next morning.

SHORE LINE. ALL THE WAY BY RAIL. The "Shore Line" runs over the two roads above mentioned to New London, Conn., where it connects with the New York and New Haven Railroad and its New London Division, extending to New Haven and to New York.

Three express trains per day each way are run over this route, the time being about seven hours. All the through trains are accompanied by drawing room or sleeping cars going through without change.

As the line follows the general coast line and through a gravelly and rocky country it is claimed that this route possesses the important advantages of coolness in the summer and freedom from dust.

A. F. FOLSOM, Supt. Boston & Providence R. R., Boston, Mass.

A. S. MATTHEWS, Supt. Stonington R. R. Stonington, Conn.

E. M. REED, Supt. N. Y. N. H. and Hartford New York.

D. S. BABCOCK, Pres't. Stonington Steamboat Co. New York.

OLD COLONY AND NEWPORT LINE.

Another favorite route is by the way of the *Old Colony and Newport Railroads* to Fall River, and thence by the steamers of the line, through Long Island Sound to New York.

The boats of this line are said to be the largest, strongest and most magnificently fitted up of any afloat. They leave Fall River early in the evening touching at Newport, and arrive in New York early the next morning. During the summer months, concerts are given in the evening by fine bands of music.

ONSLOW STEARNS, *Pres't*, Old Colony Station, Boston.

J. R. KENDRICK, *Supt.*, Old Colony Station, Boston.

WORCESTER AND SPRINGFIELD ROUTE. ALL RAIL.

This route is over the *Boston and Albany Railroad* passing through Worcester to Springfield, thence by the *Connecticut River*, and the *New York, New Haven and Hartford Railroad* to New York. Passengers are landed in the Grand Central Station in New York.

NEW HAMPSHIRE BUSINESS NOTICES.

PATRONS OF THIS WORK.

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Attorney at Law, Bath.

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Attorney at Law and Register in Bankruptcy, Claremont.

H. W. PARKER,
Attorney at Law, Claremont.

ASA FOWLER,
Ex-Judge of Supreme Court, Concord.

TAPPAN & ALBIN,
Attorneys and Counsellors at Law, Concord.

SAMUEL C. EASTMAN,
Attorney at Law, Concord.

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THOMAS COGSWELL,
Attorney at Law, Gilmanton Iron Works.

N. B. FELTON,
Attorney at Law, Haverhill.

G. W. CHAPMAN,
Attorney at Law, Haverhill.

F. A. FAULKNER,
Attorney at Law, Keene.

LEONARD WELLINGTON,
Attorney at Law, Keene.

E. P. JEWELL,
Lawyer, Laconia.

T. J. WHIPPLE,
Lawyer, Laconia.

J. BENTON,
Attorney at Law, Lancaster.

W. S. LADD,
Attorney at Law, Lancaster.

J. G. CRAWFORD,
Attorney at Law, Lancaster.

WM. HEYWOOD,
Attorney at Law, Lancaster.

HENRY O. KENT,
Attorney at Law, Lancaster.

OSSIAN RAY,
Attorney at Law, Lancaster.

WM. BURNS,
Attorney at Law, Lancaster.

HARRY BINGHAM,
Attorney at Law, Littleton.

E. W. FARR,
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Attorney at Law, Patten's Block, Manchester.

J. B. STRAW,
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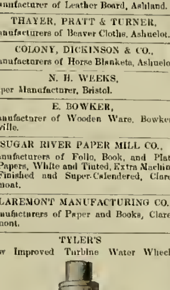

Entire New Wheel and Curb. Patented, 1874. John Tyler, Claremont, N. H.

This certifies that a Water Wheel 30 inches in diameter, known as the Tyler Wheel, was tested by me at Holyoke. The exact results obtained may be found below. During the test, the scale beam was attached to the brake at a point, which if revolving would describe a circle 15 feet in circumference; consequently the revolutions of the wheel must be multiplied by 15. Data below for one minute.

Correction for leakage, 67 83 cubic feet.
Length of Weir, 10 feet.
Temperature of Water, 45 degrees Fah.
Weight of Water per cubic foot, 62.378.
Wheel sent by John Tyler, Claremont, N. H.

JAMES EMERSON.

April 23, 1876.

No. of Test.		Head.	Weight	Rev. per minute.	Horse Power.	Weir.	Cubic Feet.	Percentage.
Whole Gate,	1	18.50	640			.786		
	1	18.60	371	219	37.32	.742	1190.25	89.66
	3	18.50	364	215.5	37.67	.739	1180.19	91.27
	4	18.46	395	208	37.52	.745	1197.81	89.96
	5	18.48	400	205	37.27	.745	1197.81	89.04
	6	18.50	390	111	37.41	.743	1192.77	89.66
	7	18.50	380	215	37.13	.740	1184.23	[illegible]
	8	18.50	370	120	37.00	.738	1180.19	89.66
						Average,		89.79
Part Gate,	9							
Seven eighths,	10	18.60	325	215	31.76	.680	1037.38	87.09
	11							
Three fourths,	11	18.62	300	209	28.40	.650	965.60	83.86
	13							
Five eighths,	14	18.67	275	211.5	26.66	.628	914.01	82.34
	15							
	16	18.76	230	213.5	21.35	.562	764.40	78.80
One half,	17							
	18	18.85	160	215	15.63	.486	602.53	72.80
	19							
Three eighths,	20	18.93	105	213.5	10.18	.417	465.71	61.09
	21							
						Average,		77.6

Patented 1874, by John Tyler, Claremont, N. H.

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